# The Journal of the American Medical Association

**Published under the Auspices of the Board of Trustees**

VOLUME LII CHICAGO, ILLINOIS, JANUARY 9, 1909 NUMBER 2


## *Address*

### THE GENERAL PRACTITIONER AND THE FUNCTIONAL NERVOUS DISEASES *


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The subject which I have selected for discussion this evening may appear vague, but I have in my mind a definite message. It may seem that I am arrogating to myself the privilege of speaking authoritatively on a subject which neither my years nor my experience justify. But before you pass judgment I ask you to take into consideration the motive, which is an earnest desire to inquire into the cause and significance of the wave of supernaturalism that is rolling over the country in the shape, particularly, of doctrines promulgated under the name of Christian Science and the Emmanuel movement by Quimby, Eddy, Worcester and their followers. This movement assails the potency of the physician adequately to combat disease, accuses him of ignorance and incompetency, and openly contends that if medicine desires to be reinstated in the esteem of the people and retain their confidence it must link hands and proceed shoulder to shoulder with supernaturalism. And this in the twentieth century, when the accomplishments of medicine are a towering, imperishable monument to the achievements of science in the hands of mortal man. The existence and the rapid growth of these cults, whose chief object is the cure or denial of disease, is patent to every one. It was never borne in on me so tellingly as it was last summer, when, wandering through New England where once my careless childhood strayed, I saw in dozens of hamlets and small towns the familiar Congregational churches replaced by temples reared to God and consecrated to Mrs. Eddy.

Are we physicians not responsible, in a measure, for the occurrence of this strange phenomenon? Have we kept our houses in order and our wares in such condition that they can be examined without fear on our part that they will be found below the standard demanded by modern conditions? Have we purified with the fires of self-criticism and self-examination the crucibles of thought in which we concoct our remedies?

#### FUNCTIONAL NERVOUS DISEASES

The so-called functional nervous diseases comprise the field in which these supernaturalists chiefly work, and it is for this reason that I have chosen these diseases for my subject.

The attitude of the general practitioner toward nervous diseases has been a strange one, in some respect inexplicable. My justification for presuming to speak on the subject is founded on many years' experience as a practitioner and intimacy with physicians as a teacher in a graduate school of medicine.

Nervous diseases are looked on as mysterious in their manifestations, incomprehensible in their display, unamenable to treatment, and therefore unworthy of profound effort at interpretation. A physician who would hesitate to admit that he was ignorant of the commoner diseases attacking any other system of the body does not hesitate to say with great frankness that he knows nothing whatsoever about diseases of the nervous system. Apparently he does not feel that such admission reflects disparagingly on his medical education.

The explanation of this attitude is a simple one. In the first place, it is a direct heritage. There is scarcely a physician who has been in practice twenty years who received any considerable instruction during his college days in neurology. He may have heard a few didactic lectures and attended an occasional clinic in which the commoner nervous diseases were demonstrated, but the majority sat under professors of medicine who had as little interest in nervous diseases and as little inclination to attempt the serious study of them as the students themselves displayed when they in turn became practitioners. Consciously or unconsciously, they acquired the idea that it was a mark of good form to slight nervous diseases. Moreover, the immediate results of such example was that when the young practitioner began to encounter nervous disorders he was at a loss how to begin the study and interpretation of them; in other words, how to attack them.

If a patient came complaining of symptoms referable to the kidneys, to the respiratory organs, to the pancreas, to the ductless glands, the physician recalled a method of investigation and a plan of attack which he had been taught and when he put these into operation he found frequently that he was led to a correct interpretation of the symptoms for which he was consulted. But it was not so with disorder of the nervous system.

The practitioner heard the patient's history and statement of his complaints, and then he found himself unable to conduct the examination in a way that would reveal the location and nature of the disease. This statement of affairs was true, not only for organic nervous diseases, but for functional nervous diseases. Gradually the commoner organic nervous diseases were found to be readily recognized in the majority of instances by the application of empiric knowledge or rules of thumb: it then became truer for the functional diseases than for the organic. For instance, the diagnosis of tabes was readily made when the Argyll-Robertson pupil, absent knee-jerks and Romberg symptoms were present. Like-

* An Address to the Rensselaer County Medical Society, Troy, N. Y., Dec. 9, 1908.

wise, when a patient who, previously having had syphilis, showed slight spasticity of the legs, exaggerated knee-jerks, the Babinski sign, and trifling disturbance of sensibility, the physician did not hesitate to make the diagnosis of syphilitic spinal paralysis, or of syringomyelia when with muscular atrophy there was associated sensory disturbance, characterized particularly by dissociation of sensibility. Happily, physicians of the present generation have received instruction to such purpose that the commoner organic nervous diseases are usually recognized. The conviction that they are less amenable to treatment than other forms of chronic diseases is, however, still very widely held, and neurologists are often taunted with their inability to cure chronic diseases of the nervous system. But when such diseases are compared with other visceral diseases of comparable severity and chronicity we find that many of them are as susceptible to treatment as many diseases of the kidneys, pancreas and liver.

It is particularly the functional nervous diseases and the attitude of the general practitioner toward them that I wish to discuss.

### FUNCTIONAL OR ORGANIC?

I shall not stop to consider the possibility that the diseases which we now call functional, some or all, may not one day be found to be dependent on definite organic alteration: that some of them will be seems very likely. There are diseases in which no characteristic anatomic alterations are found after death, and yet we believe these to be organic diseases. Among these are paralysis agitans, grave myasthenia and hyperthyroidism. There are other nervous diseases, commonly spoken of as diseases of degeneracy or deviation, such as tic, hysteria, idiopathic epilepsy and psychasthenia, possibly migraine, which are not likely to be found associated with anatomic alteration. The very fact that the individual who is a victim to one of these diseases is, for long periods, free from any indication of disease is the chief reason for assuming that they are not dependent on organic change. Although a person may have an organic disease and at times be free from symptoms, such disease can not last for a long time without causing symptoms.

If we ask ourselves earnestly and soberly what we understand by tic, hysteria, epilepsy, psychasthenia and migraine, what answer is obtained? A few will be able to explain the modern conception of these diseases from the biologic and psychologic points of view, but the average physician will be able merely to describe or to define the leading clinical features of each one of them. Yet if you ask that same physician to tell what he understands by diabetes he will probably say that he interprets it as a profound disorder of metabolism, in which sugar is manufactured not only from carbohydrates, but from proteids, possibly from fats, whose chief manifestations are polyuria, glycosuria and disordered nutrition. He is likely to tell of the important rôle played by the pancreas in the metabolism of carbohydrates; of diabetes produced by complete extirpation of the pancreas in animals which can be cured by grafting a piece of pancreatic tissue beneath the skin; and he makes the differential diagnosis between glycosuria and true diabetes with a great deal of positiveness. Yet diabetes is quite as mysterious a disease as hysteria and infinitely less susceptible to cure. There seems to be something about the functional nervous diseases which is decidedly repellent to many members of our guild.

### THE REALITY OF NERVOUS DISEASES

I have spoken so far of only one feature of the physician's attitude toward functional nervous diseases, which is the admission that he does not know anything about them, that he does not know how to attack them in order to interpret them, and that he is ignorant of the modern teaching concerning their origin and nature. I wish now to refer to another feature of his attitude toward them—one that is almost entirely either hereditary or atavistic—and that is the belief, feeling or assumption that these diseases are not real, that they are more or less assumed, that they are manifestations of weakness of contumacy, that they are a sort of splotch on the scutcheon of health and of moral dignity, that they are evidences of stubborn perverseness which excite a mingling of sympathy and contempt, that they are the products of a disordered imagination. This is a distinct sequel of the view which looked on functional nervous diseases as manifestations of demoniacal possession, and it is probably very much less prevalent than it was even a generation ago. But it exists still, and it shows itself in the disinclination on the part of many of us seriously to study these disorders and to attempt to get at the foundation of the symptoms of the disease. In other words, it shows itself in the casual way in which neuroses of degeneracy are frequently treated.

### REFLEX CAUSES

A third inclination on the part of the physician to attribute the occurrence of many of the nervous diseases under consideration to causes operating from a distance and through organs whose connection with the nervous system is very remote—so-called reflex causes. Fortunately, the uterus has lost its hold on the functional nervous diseases, and with it has gone the dominion of the clitoris, the prepuce and other portions of the genital apparatus, but every now and then we have to bow our heads in sorrow, if not in humiliation, while some one attempts again to scatter seeds of belief in the reflex theory of the causation of nervous diseases, even though the disease be locomotor ataxia and the source of the reflex impulse the urethra.

There can be no doubt that the manifestations of any of the functional nervous diseases of degeneracy may be brought about by the stress and exhaustion produced from any continuous strain or any frequently repeated series of disagreeable sensations. But these do not cause the disease; they cause manifestations of the disease. This is but a mirage in pathology, and the deceptiveness of appearance yields to appropriate investigation.

### PSYCHOLOGY

The fourth reason for the practitioner's inadequacy to deal successfully with the functional neuroses is in a great measure due to the fact that psychology is for him a terra incognita. He has been and is still trained in utter ignorance of the essential facts and principles of psychology. Naturally he knows something about the mind, as does any layman, and he speaks of sensations, emotions, ideas, thoughts and feelings, using these expressions in significations that are common to all mankind; but when he comes to interpret the psychic symptoms of the neuroses he finds it necessary to make exact distinctions. For example, he probably believes there are five senses, sight, hearing, smell, taste and what is commonly called a sense of touch, or the skin sense; yet he does not know that this traditional classification

is regarded as utterly lacking in significance by the modern psychologist. Consequently when he comes to examine the sensitive surface of the skin and finds that there are several recognizable different sensations, such as those of pain, touch, temperature, tickle sensation and pressure sensation, that one or the other of these may be absent while the others remain, the situation is beyond his comprehension. He stands with little more than mere astonishment before the discovery that a man may lose his ability to sense heat and yet retain his ability to sense cold. If he has studied physiology of the nervous system he knows that the pathways in the spinal cord for these different qualities of sensation are different; but without this knowledge anesthesia is most confusing.

### THE MIND NOT A THING APART

The practitioner probably shares also the common belief of mankind that the mind is an entity apart from the body, and that certain mental states have no material basis. This is a view that at one time was quite generally held and which is difficult to down. I note that, in a clinical lecture on hysteria delivered in New York, a teacher of neurology, in describing pain which the patient complained of every morning on arising, and which prevented her from going to work, took the position that the pain, being hysterical, was purely mental and, therefore, had no cause resident in the brain of the patient. There is no pain or ache or vain imagination which has not some cause in the nervous system of the subject. The cause may be found in very different portions of the nervous anatomy. A toothache may have its cause in caries of the tooth; on the other hand, it may be due to some pressure on or disease of the superior maxillary nerve. Again, it may be the result of an intoxication which affects the cells of the Gasserian ganglia, or to disturbance of the cerebral centers that are responsible for the apprehension of pain sensations. The presence of pain, after it has once been established, is a symptom of some disordered function of the nervous system, though we may or may not find its site.

If students of medicine were given even an elementary course in the facts of psychology their attitude toward their patients and toward the psychic symptoms which they present would be quite different both in nervous and in many other diseases.

My experience has been that the chief obstacle to the satisfactory interpretation of nervous phenomena by the physician who has not had special training is that he is at a loss how to proceed with the examination of the patient. If the patient is a sufferer from functional nervous disorder which does not carry with it some distinctive diagnostic symptoms, such as headache in migraine, or the convulsion in epilepsy, the story of the symptoms is so complex and so indistinctive, one might say, that the physician finds difficulty often in getting what may be called a diagnostic perspective. Finding the patient lachrymose and emotional, he calls the disorder hysteria; if depressed and inert, he calls it neurasthenia; and even when he has made the diagnosis he does not feel any particular satisfaction. But when the same physician makes a diagnosis of tuberculosis, of hydrochlorhydria, of pyelitis, immediately there arises in his mind a course of conduct which, when put in operation, will be likely to bring his patient relief. If he does not feel sure of his diagnosis, there occur to him further procedures of which he may avail himself to make it absolutely certain. But with the functional neuroses such prospects do not present themselves. The physical examination is usually confined to a routine procedure of investigating the state of the urine, the condition of the heart and lungs and the state of the tendon-jerks, the so-called reflexes. It may be too much to expect that he should analyze the genesis of an obsession, or unearth an experience which a long time antedates the patient's disorder, but which, nevertheless, stands close to it in causal relationship. Still, a willingness to do this and a willingness to call to his aid the services of others who possess skill in that direction is necessary if we are to remove the obloquy that has become attached to our conduct of these diseases. It has been said that we prescribe medicines for the functional nervous diseases empirically, and principally bromids and strychnin. In no other branch of medicine does the practitioner feel justified in similar procedure. He considers a diagnosis to be an absolute necessity before any systematic treatment is begun, and even when the diagnosis is made he has clearly in his mind a definite picture of the morbid condition which the therapeutic measure proposed is intended to overcome. Does he have any such definite purpose when he essays to treat the functional nervous disease? I think it will be agreed that he does not.

### THE EMMANUEL MOVEMENT

My chief reason for discussing the attitude of the physician toward the functional nervous diseases is to be found, however, in some occurrences of the past two years. Somewhat more than two years ago the rustle of psychotherapy was plainly heard in this country, but it is only recently that it has attained cyclonic proportions in the shape of the so-called Emmanuel movement. This is a revival of some of the emanistic doctrines of Neo-Platonism, fostered by the philosophy of F. H. W. Meyers and Hudson, with here and there the teachings of William James. It has developed under the auspices of the Emmanuel Church of Boston from the efforts of the Rev. Elwood Worcester. This divine claims to have received the germinal idea from Dr. S. Weir Mitchell and the impetus to start the movement in the hearty cooperation of the "leading neurologists of New England," but especially of Dr. James J. Putnam, professor of neurology in Harvard University. Both physicians have publicly repudiated the Emmanuel movement, its practice, pretensions and propaganda.

In reality the purpose of the movement is the revivication of that branch of the Christian Church of which the Rev. Elwood Worcester is a member and whose doctrines he professes to believe and has promised to disseminate. This church has fallen into a state of apathy, whose future along present lines of conduct seems bleak and sterile (quoted from Rev. E. Worcester's address to the Faculty Club of Columbia University, May, 1908): "The Christian character of the undertaking is guaranteed chiefly by the fact that it is absolutely disinterested." Volunteer contributions are solicited at each meeting so successfully that already the Boston clinic is in possession of a large fund which, it has been said by one of the founders, is to be used for the purchase of a property and for the construction of a spiritistic sanitarium in a salubrious locality that is at once soothing to the senses and stimulating to the soul. But the Christian character of the New York movement is not so disinterested, judged by the above-mentioned criterion. Its initiator there says, in a circular letter:

> "We are ready for the very rich, for the very poor, and for the majority that are neither the one nor the other. And

most people do not want free service. Their wishes are right and will be respected. Ours is no free clinic except to the very poor; save to them there will always be charges and offerings.

There is no likelihood that this language will be misunderstood. The leaders of this actively profess to base their advent into the practice of medicine on a scientific basis, and cite in support of their profession the fact that they have associated themselves with physicians. But, when the matter is looked into, it is found that in reality what they have done is to discuss with physicians the advisability and great desirability of uniting the efforts of the church and of the medical profession and of all other learned professions, so that the people of the earth shall learn to live hygienically and to think straight, in order that they may remain sound in body and sane in mind. There is no doubt where the medical profession stands in such a matter.

The Emmanuelites are attempting to associate with them physicians who will act as diagnostic tools and who, after making the diagnosis, will turn the patients over to them for treatment, the leaders of the movement, for some incomprehensible reason, assuming that they have an ability to cure disease which the physician has not or can not acquire. The only real motive that can be assigned for such attempt is that, having failed in the profession for which they were trained, a portion of the clergy now essay to try their luck in one for which they have no training, on the ground that Christ was a physician and that they are followers in his footsteps.

### THE CHURCH AND HEALING

The church, for a large part of its history, was the most important social and political organization in the communities of Western Europe. It retains this position still in some countries, and is the fount of all knowledge, education and care of the deficient classes and the inspirer of social progress. Since the time of Descartes modern science has arisen and stripped away from the church many of these functions, because to be an expert in any one field has required exclusive attention. To-day the progress of medicine has brought us to a point where it is found that a certain community of interest must be developed. This is notably the case in the treatment of tuberculosis. The measures employed to place a community in the attitude of mind necessary to cope successfully with the ravages of this disease are economic, social, psychologic, moral and perhaps even religious. I am also of the opinion that this is the case with some nervous and mental disorders. These must be combated by educating and training the public, not by curing individual patients after the diseased condition has occurred. Consequently I look with favor and hope for much assistance from the development of social service in connection with dispensaries and hospitals for the treatment of these diseases.

The outcome of such cooperation would be that the church should resume, as it appears in some instances to be resuming, not only certain social functions, but also some care of the physical and moral lives of the peoples of their communions, in order that they may lead not merely a righteous and godly life, but also a hygienic one. This is a very different matter, however, from assuming the practice of medicine, which the Eddyites and the Worcesterites do.

I recently published a communication in the New York *Times* in which I attempted to show: 1, that physicians are more legitimately entitled to practice medicine than clergymen; 2, that the assumption of the function of the practitioner of medicine by the latter profession was arrogant and unjustified; 3, that Worcesterites had no corner on cheerfulness, hope, courage, faith and prayer; 4, that it was ungracious of them to scoff at their parent, Mrs. Eddy. Among the many letters which I have received since this communication appeared are a few which seem to indicate a suspicion in the minds of the writers that I am opposed to the church as an agency to combat disease. On the contrary, I am firmly of the conviction that it is our most potent adjuvant in the warfare against disease and that we should avail ourselves of this powerful agency to inculcate principles of right living and optimistic, elevated thinking, which are the antagonists of ill health. "I dress their wounds and God heals them," wrote Ambrose Paré over the portal of his operating-room; and no one, I think, of our profession has so far lost sight of his personal insignificance as ever to think otherwise.

In healing "God cures by the use of sunlight, healing and nourishing substances, water and air," says one who presumes to act as His spokesman in a book entitled "Religion and Medicine." No believer in God, I presume, denies the truth of this, for it is a part of the general admission that God is love and virtue and the source of all beneficence. What the atheist or the agnostic believes about this no one but himself knows, for he does not feel called on to shout from the housetops or from the vantage-place of the public press that which he believes but can not prove. Why do not the laborers in the Lord's vineyard who are so insistent on their disinterestedness aid those who are not so fortunate as to possess their intelligence and enlightenment to use these God-given and health-restoring agencies by precept and example rather than by attempting to explain their action by a nebulous philosophy that has little foundation and few adherents? If "the time is come when the church must enter into the personal lives of the people and make a freer use of the means modern science and the gospel of Christ places at her disposal if she is to continue to hold even her own," why not, I ask, teach well persons so how to live in the luminous light shed by these agencies that they will not fall into ill health? If the Rev. Dr. Worcester and his followers are so desirous of emulating Christ, they might begin by displaying a measure of that quality which was so essentially, next to His divinity, His most distinguished feature, namely, humility. They should display a willingness to work with the physician, not as the master but as the servant, as an unprofessional assistant strictly amenable to suggestions and to orders. That the physician should become a diagnostic tool in the hands of the clergyman is preposterous and absurd. That the clergy shall be allowed to practice medicine without qualification is absurd and illegal, and the safety of the people demands that they be protected from those who arrogate to themselves any such rights. Nearly 800 years ago the church and the practice of medicine were forcibly rent asunder by the first Lateran Council in the pontificate of Calixtus II; we are as unlikely to go back to it as we are to take up again researches in alchemy or to endeavor to find the philosopher's stone.

### THE PHYSICIAN'S DUTY

The question is, what is our immediate duty in the matter as physicians? It is so to conduct ourselves in the study, interpretation and treatment of disease that

these and other interlopers shall not be able to charge us with incompetency, inadequacy and inefficiency. That there is some justification for so charging us in our treatment of the functional nervous diseases I have admitted; and the foundation of the charge has been our neglect of the appropriate study of nervous diseases in the light of the developments of modern psychology. For years neurologists have been tireless in pointing out the influence of mind over matter, especially manifest in the treatment of functional nervous disease. In season and out of season they have called attention to the fact that the important element in the treatment of these diseases was the patient himself, and that little could be accomplished until his attitude toward his disease was one of hope, faith, courage and self-reliance. They have recognized that the moral element in the causation and the maintenance of many of these diseases was the important one, and they have striven, with the aid of philosophy, religion and suggestion, to counteract it. So far as I am able to determine, their message fell on insensitive ears, for it was not until the publication of the translation of a book entitled "The Psychic Treatment of Nervous Diseases," by Dr. Paul Dubois of Berne that the profession in this country seemed to give heed to it. Then they gave heed with frenzy. Soon there began to be heard in medical meetings, papers—by internists as a rule—which set forth the great therapeutic value of psychotherapy. A reference to the current medical literature of the past two years will give an idea of the hold which this subject has obtained on the general practitioner. Neurologists who had been attempting to disseminate information concerning the value of psychologic interpretation and spiritual treatment were at a loss to understand wherein the novelty of the matter lay. The enthusiasm seemed out of all proportion to its merits, which it may be said in passing, had been fairly well determined. Nearly every one of these writers presented the subject as if it were novel, and openly stated that if its therapeutic potentialities were known and utilized the results accomplished by the physician would be vastly different. Some writers hinted that there was a more or less well-formulated procedure which constituted the mode of utilization of psychotherapy. For instance, it has been my experience to attend a meeting of a society which is commonly supposed to represent the most advanced expression of medical knowledge and culture and to hear a man make the statement that practically all cases of constipation yielded to psychotherapy. The writer had cured himself and every one on whom he could lay thought. Still, when he came to describe his mode of procedure it was found that it differed in no way, so far as the average mind could discern, from that which is utilized by many of us when we essay to treat this common infirmity.

Much advance has recently been made in the interpretation of psychic manifestations, in the understanding of psychogenetic symptoms and the way in which disorder of function, mental and physical, is overcome by psychic procedure. No one familiar with the work of Freud of Vienna, of Jung of Zurich, and of many neurologists and psychologists at home and abroad can deny it. But in reality their contributions have been in the line of psychic interpretation, psychoanalysis and psychodiagnosis. If one were to discover a mode of procedure that would allow us to diagnosticate a lesion of the bundle of His he would not be likely to speak of it as a contribution to the therapeutics of paroxysmal tachycardia. Naturally he might deduce from such knowledge a procedure whose application would result in cure, and in a measure this is what has occurred in the wake of Freud's and Jung's interpretations. For instance, many of the psychic and emotional manifestations of the neuroses have their origin in experiences affecting the moral sensibilities early in life. These may be so many years anterior to the time of appearance of these symptoms that they are absolutely forgotten, or if not forgotten the relation of cause and effect entirely lost sight of. It would seem to require no argument to convince one that the way to overcome such symptoms would be to uncover the psychogenetic experience on which the disorder is dependent and to present the matter to the patient's mind in a logical way. Then, with a mature mind, properly oriented, he might review the sequence of events and then sit in judgment on them. This judgment should be aided by wise counsel emanating from one who has had wide experience with such matters, and who is versed in the laws of physiology and pathology, such as the physician.

### THE PHYSICIAN'S ATTITUDE

What is our further duty as physicians, as citizens and as representatives of the culture in our branch of the humanities of the twentieth century? In my opinion it is so to state our position that we shall not be misunderstood and that our motives can not be misinterpreted. It has been hinted here and there that our livelihood is being encroached on and that our very existence is threatened. If such things could be, and from the attributed causes, I for one should hail it with delight. The public probates of physicians' wills are the best evidences that most physicians do not practice medicine for riches, and the few who do must be bitterly disappointed. My profession needs no champion. If now and then we have fallen on parlous times, and words of appreciation and approval are grateful, a pen capable of transcribing letters in ink that will not fade has appeared in the hand of an immortal like Robert Louis Stevenson.

It has been said that physicians misunderstand the Emmanuelites' position and misinterpret their teachings. There seem to be no facts furnished on which to base such charges. A recent anonymous defender of Rev. E. Worcester, writing in the New York *Times*, says that physicians accuse Dr. Worcester of holding that psychotherapy is a universal panacea. I do not recall having seen such accusation in the public print; but a measure that will cure 80 per cent. of all cases of alcoholism approaches more nearly a universal panacea than anything this world has ever seen! This writer also says that Dr. Worcester is accused of wishing to revert to the age when the functions of priest and doctor were united in one man. I do not presume to know what Dr. Worcester wishes, but I judge from his actions and his words; they indicate that he is reverting to the middle ages. This critic also says:

> "The chief reason why many sick persons hesitate before they send for a doctor is because doctors are too inhuman. They have lost their humanity in the laboratory. They look on a patient not as a poor, sick fellow-creature that they want to help, but as an interesting intellectual problem: an opportunity for a little original investigation.

Every one is entitled to his own opinion, unless his conduct based on such an opinion endangers life or makes its possessor a nuisance to others. When it does his family or friends put him into an asylum in order

to safeguard him and them. It would be interesting to know in what laboratory doctors are dehumanized. I am not aware that the laboratory experience of any save an extremely small number of physicians is of such extent that it would bear much more than mere mention.

I purposely refrain from speaking of one feature of the Emmanuel movement which solicits careful investigation; that is the statements of Dr. Worcester, his disciples and fellow-practitioners regarding the frequency of functional nervous disease and the success that attends their treatment. If any one can believe that they cure 80 per cent. of cases of inebriety no word of mine will awaken him, for he is luxuriating in a glorious vision of the promised land, the millenium to come when this miserable world, freed from the fetters of alcohol, insanity, immorality, imbecility and illegitimacy, shall be no more.

But it seems incredulous that any opinion emanating from an individual who makes a statement so wholly devoid of fact as the one which I am about to quote should have the slightest weight with any one capable of reasoning. Bishop Fallows, who is the champion of the Emmanuel movement in Chicago, has recently written a book entitled "Health and Happiness," which contains the following paragraph:

"The functional disorders of the nervous system are quite modern. They appeared some time in the last century and were never known before in the history of the human race. They are so comon now that the physicians designated as neurologists could not take care of one-tenth of 1 per cent. of these cases.

Now I submit that if one were to characterize briefly the mental or moral status of an individual who made such a statement he would be reduced to the use of brief words and very few of them. Every one who has even an elementary knowledge of the history of the middle ages knows of the ravages of the so-called functional nervous diseases in that period. Tome on tome of literature and statistics attest it. In fact, I could successfully defend the thesis that functional nervous disease is no more common now that it was 300 years ago.

### PSYCHOTHERAPY OF THE EMMANUELITES

As an example of the suggestion in psychotherapy, I may quote from a recent lecture of Dr. Worcester in New York, in which he told in glowing terms how insomnia and the alcoholic habit were overcome by suggestion. His suggestion for those who have insomnia was, "When you retire, think of the beautiful things of Nature. Imagine you are on the brink of a placid lake; then think of the soft moonlight as it falls on the peaceful water." Yes, indeed, if the baby suddenly cries while you are in the midst of such alluring thoughts, or your wife insists that you go down and put the furnace in shape for the night, keep in mind that the placidity of the lake has not been disturbed in the meanwhile and that the moonlight is just as soft as before your sweet dreams were rudely disturbed!

Fellow practitioners, let us have zeal of God, but let us have it according to knowledge.

37 West Fifty-Fourth Street.

**Education of the Unfit.**—Charles G. Kerley, in the *Archives of Pediatrics*, states that over-education of the unfit brings forth tastes, habits and desires of which the individual should know nothing, and is the cause of more thieving, gambling and all-around dishonesty than is well appreciated. When position and wealth and reasonable competency do not follow by legitimate means, others are readily seized on.

## Original Articles

# THE PRESENT RELATIONS OF PSYCHOTHERAPY

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BOSTON

The answer to the question whether the pathologist can ever draw a sharp line between organic disease and functional disturbance is yet far off. Newer methods are constantly narrowing the list of maladies of which the organic substratum has been hitherto unknown.

Every expenditure of nervous energy, every mental action, every emotion, is undoubtedly accompanied by a subtle change in a larger or smaller group of neurones, some breaking down of the complicated vital molecules into simpler ones more closely akin to the inorganic, more accessible to the microscope and the test-tube. Fatigued tissues can be recognized under the microscope, and when the balance between fatigue and repair is broken for too long a time permanent degeneration is manifest. It is more in accordance with our knowledge of tissue metamorphosis and of toxic action to assume that the material change is the primary one. The rapid action of many poisons upholds this view, which may fairly be expected to cover those poisons of internal origin.

The assumption of a general control of structure and action by thought, without knowing what thought is or where it has its origin, a well-rounded theory of the complete dependence of health and disease on the mental attitude, is a convenient generalization and opens up a picturesque pathway along which one may stroll at leisure with many diversions until he is brought face to face with some hard pathologic facts.

The hotbed culture of hybrid new thought is a rapid and easy process admitting of a theoretic perfection entirely unattainable as yet by the slow growth of biologic science based on physics, chemistry and anatomy.

For our practical needs it is desirable to bring as much of the borderland as possible within the limits of the known and measurable and to ascertain where they come together.

It is not so very long since the doctrine of the dependence on the bodily health of correct mental action, of the emotions, even of theologic views, a comfortable digestion, a happy life (in this world at least), was the one popularly taught. It was summed up in various proverbs, such as *"mens sana in corpore sano,"* and the pun "whether life is worth living depends on the liver," etc.

Even in the confusion of claims of the various theories and specialties, each for itself, this doctrine, far from growing obsolete, continues to cover an enlarging field in diagnosis, and as morphology is being supplemented by biochemistry, it more nearly covers the whole. And not only for therapeutics in the narrowest sense, but for preventive medicine, it is by far the most potent theory for good.

Now in the minds of hundreds of thousands, perhaps more correctly millions, this relation is reversed. That "strong will with which anything could be done," and which was considered one of the good gifts of Providence, is now within the reach of any one who will put himself for a time under the influence of a stronger one or even of a meaningless verbiage.

The comfort and usefulness of decision and fortitude in bearing disease, as well as other misfortunes, is not to be underrated. The contribution to the happiness of many persons by instruction in firmness and serenity of mind given by so many sects of mental healing may be of great value. Whether the more recent instructions are more valuable and efficient than the old is another question.

But courage and patience are not new discoveries, nor are they the restoration of health. The invalid may do much and valuable work. In fact, a good deal of the best work in the world has been done by invalids; but it has been done in spite of disabilities, not by getting rid of them.

The normal control of the psychic centers over the functions of the rest of the body is only within a very limited extent a direct one. Strangely enough the connection is most easily interrupted where it is least roundabout, as in the paralyses and anesthesias. The very point at which the circuit seems most direct is that at which the psychic force meets its highest resistance, which may be raised or made absolute by organic disease. It is only when these paralyses and anesthesias are purely inorganic or functional, that is, when they depend not on the severance of organic connection between the psychic centers and the peripheral connections, but on the disarrangement of association centers, that the will or mind of the patient or physician can be made to influence them usefully. (This, of course, does not refer to conditions in which the training of a new set of muscles or even new centers can be made to take up the movements of others disabled.)

Nothing can be much more hopeless than an attempt to make the will control purely psychic manifestations of organic degeneration in "general paresis," for instance; and almost as strong an expression may be used of a great share of the melancholies and other forms of insanity with which as yet neither morphology nor chemistry have established a definite connection with tissue changes.

On the other hand, for instance, the beneficial effect of thyroid feeding on the mental condition in myxedema is very clear. No one doubts the effect of the nutrition on the emotions.

Mental, that is, cerebral, action is connected with physical, that is, sensation and muscular contraction, by a series of paths which have comparatively little direct relation with the so-called "vital organs." It is only when morbid activity of these organs reaches a certain intensity that it normally forces its way to the upper consciousness, that is, awakens the attention. But the attention may be oversensitized by morbid associations. Here is the crucial point in the diagnosis: Are such activities trivial or not? Can they be physically banished?

Voluntary control over the movements of organic life is not great. In a notorious but highly exceptional case many years ago a person kept up, day and night, a rate of respiration several times the normal and far beyond the limits of voluntary imitation without notable impairment of health in other ways and finally recovered by two applications of a saint's shin-bone. But one can not by an act of the will quicken the beats of the heart.

Psychical excitement, manifest or concealed, will accelerate the pulse considerably. A utilization of this fact has been made for getting a sort of involuntary confession from criminals.

The route of psychic influence on nutrition, on the metamorphosis of tissue, is almost entirely through the vasomotor system, the smooth muscles and the secretory nerves.

Blushing and paling, often dependent on entirely peripheral disturbances of cardiac and vasomotor nerves (for example, those caused by heat and by alcohol), may also be strictly physiologic results of psychic action, which in its turn may be normal or occasionally controlled by a "fixed idea," a "dread," or "obsession."

The movements of the iris are controlled by drugs, by the distribution of light, by organic disease, and also by emotions, which we assume to be the result of associations taking place in the cerebral cortex.

The muscular act of vomiting may be set in motion by direct irritation of the stomach, as in cancer, ulceration, gastritis and irritant emetics, by certain emetics acting on the medulla, by intracranial pressure, by irritants reaching no nearer to the stomach than the pharynx or even the mouth, by disgusting sights and smells (which is a form of psychic association); and again, in a form, not always easy of diagnosis, of wearing, dangerous, even fatal, neurotic vomiting, it may result purely from the "fixed idea." Here the psychic comes very close to the organic, for a constant complete emptying of the stomach, no matter whether under the influence of a cancer or an idea, is in effect the same.

A more pleasing demonstration of the influence of the mind on digestion is to be seen in the dyspeptic who enjoys and digests a "big dinner" but can not get along with the carefully limited scientific feeding. "Better is a dinner of herbs where love is than a stalled ox and hatred therewith."

But even if this universally acknowledged power of the mind over certain bodily functions, which seems to be considered by some a recent discovery and is by many sects claimed as their peculiar property, be much less than many theories would make it; if we admit its strict limitations as a cure (not merely as a mitigation and relief), we find it utilized every day by every sect, consciously, subconsciously, unconsciously or unwittingly. Can any self-critical physician of experience for a moment suppose, in the face of the constant and rapid changes in therapeutic theory, that the recoveries in all his cases are attributable to the exact scientific adaptation of the drugs he has administered? If his patients recover to-day simply because he has employed the most modern and scientific methods, why are his earlier patients still alive? Why do those of his neighbor who follows another treatment recover also?

Every such candid physician treasures in his memory, if not in his case-book, recoveries which he did not expect and could not explain; others which he knew had nothing to do with the drug or the dietetic treatment instituted; others still in which he more than suspected that the batteries and the vibrators had only a "moral" effect; with a small residuum in which he could not help recognizing the predominance of his own personal influence and teachings.

He is not so likely to plume himself or the latter as on his appendectomies, for instance (or was not until he learned that his successful mental devices had also received a name just as long, and better Greek). Is not this because he supposes that the one testifies to real professional skill while the other, if heard of at all, is apt to be attributed to nothing in particular or merely good luck? The fisherman much prefers talking about the trout which jumped at his carefully selected fly to

exhibiting the pout or eel which would gobble anybody's ignoble worm.

Is it possible to reduce the accumulated knowledge of the physician and the charlatan to a system? Like too much else of the experience of the busy man, the data of the practitioner are all too briefly recorded. If such episodes live in his memory they are likely to come to light with picturesque and dramatic distortions of years, chiefly as the basis of humorous stories at club suppers. The charlatan may be an enthusiastic, perhaps a learned one. He is more often a shrewd ignoramus or even a liar pure and simple. In the latter case he is no more likely than other manufacturers to give away his trade secrets. In the former case he is probably unable to do so in any language understandable by the common people. But with caution and patience he can be utilized.

Rough statistics, such as those collected by H. H. Goddard, based on interviews with patients and healers whom he thought to be honest, although uninstructed, reveal no astonishing proportion of recoveries; and the boasts of so-called religious leaders, and the recorded cures of these thaumaturgists (they are not in danger of being hidden) confirm these conclusions. The former set corresponds sufficiently well with the reports of scientific hypnotists; the latter can be matched in the recollection of many a practitioner who never suspected that he was stepping outside the plain practice of medicine into higher regions of psychotherapy.

The questions which arise in regard to modern practical schemes of mental healing are partly of principles, partly of methods and partly of persons; the most important, the fundamental one, that of the diagnosis of the known, acknowledged, organic, from the functional, inorganic or psychic, between the structural lesions and the maladjustments, should be settled before mental healing is invoked.[1]

Is there underlying all the forms of cure, whether of the psychotherapist, the enthusiast or the utter charlatan, any common principle or condition which is an essential to recovery?

We must make the unpleasant, by no means flattering admission, that what goes to explain Lourdes or Ste. Anne de Beaupré must have its value in Paris or Nancy or Boston. Holy (even if dirty) water may be —in psychic analysis—the equivalent of bitter tinctures or animal extracts, or sugar plums.

Patients who like to narrate their cures like also to enhance the effect by stating that they "did not believe in it at all, but were persuaded by friends," and so on; but it is certain that faith, formally acknowledged, or unconsciously present, is a factor in all and the only factor in some recoveries. One of the curious contrasts in individuality is to be found in the effect of simple reiterated assertions, in one class of mind awakening only repulsion, in another intensifying and developing a nascent wish into a belief, or in a few even perhaps originating belief from chaos. No one knows this better and utilizes it to more advantage than the commercial and especially the medical advertiser.

The "otherwise minded," the man who really delights in opposition, is probably more highly endowed intellectually than his credulous brother. He is likely also to be much more uncomfortable to himself and to his neighbors, much less profitable to the charlatan, and if his crankiness is brought to bear on his own health rather than on the conduct of the world in general he is a terror to his physician. Mary's little lamb followed her to school one day and undoubtedly remained as stupid as other sheep, but if she had been trying to make a pig a learned one she would have grasped the animal's tail and pulled as firmly in the opposite direction as possible.

When it is considered how many different disorders there are existing supposed to be amenable to mental treatment, and the infinite combinations wrought among them by individual peculiarities, heredity, education and environment, it seems that here more than in any other department of medicine each patient must be a case by himself. As to the development of this necessary faith it may in some be of that nature which attaches itself quickly to the nearest object. In many its development is capricious and dependent on some accident, some pleasing, apparently novel, aspect of a familiar idea. Comparatively few base their faith on a rational judgment.

Among all these is it possible to frame rules applicable by every one in procuring that confidence essential to success? It is the subconscious emotion, wish, longing, trust, confidence, rather than a logical conviction, which supports the forces working toward cure. Often the more completely unconscious it is the better, for it is less likely to be disturbed by intellectual doubt.

"The man convinced against his will is of the same opinion still."

The scoffings of the skeptic can be directed with less effect against a belief which rests on hidden foundations than against one which stands in full view with its weakness exposed. Faith in the occult and mysterious is in many persons easier to attain than confidence in a teacher, no matter how wise.

If from the effect of some unusual excitement on a predisposed constitution the subliminal consciousness becomes completely separated and assumes the control which should belong to the conscious reason, the conditions are ready for the rare miracle-cures which bulk larger in literature than in real life.

A successful scientific system of psychotherapy is as difficult to impart by formal instruction as is business shrewdness, social tact or political magnetism. Indeed, the latter simile carries suggestions which might lead us too far from the field of medicine. It would be as difficult to lead a student, sincere, well instructed, a little too sensitive as to his dignity, a little too fastidious, too careful of his scientific reputation, but without tact and common sense, to overcome these difficulties, to become a successful mind healer, as it would be to make a conscientious student of political economy into a successful "boss." It is largely a work of art, not a science; perhaps a work of Nature rather than either.

If we wish to fix more precisely the avenues of approach to the therapeutics of the lower consciousness, where it is now conceded that many psychoses principally have their stronghold, we might make a list somewhat like the following:

A. Assertion, positive and reiterated.

B. Instruction, persuasion and exhortation. Encouragement.

C. Free confession, including the "cathartic" or analytical method of Freud.

1. Warning has been given by some of the early supporters of the religiotherapeutic movement, against the danger from its falling into too enthusiastic, but ignorant hands. The danger is undoubtedly a real one, but it is no more imminent, and possibly less serious, than may be found in the case of any other method (really useful or not) which appears in the guise of novelty. The protection is to be found in what is now and ought always to be an essential part of the system, the skilled careful diagnosis.

D. Deception. Placebos. Drugs in which both the patient and physician have a kind of half-belief.

E. Suggestion, hypnotic or waking. The word is often given a much wider application than was at first intended.

Reason, sympathy, sarcasm, concerted action, interesting occupations, are among the methods to be carried out through these paths. That any one of them is to be looked on as the only avenue in all cases is absurd. They are to be applied with the most careful adaptation, not solely to the name of the disorder existing, but with just as careful diagnosis of peculiarities of the individual case.

One might suppose a practitioner trained in the old-fashioned form of compounding a prescription to put his directions somewhat in the following shape, either in his own mind or on paper, if to be placed in the hands of an assistant:

The essential *active* elements: Reason. Sympathy. Occupation? Shock?

The *adjuvants*: Rest, feeding, seclusion, exercise, passive or active, massage. Occupation?

The *corrigents*: Sarcasm. Judicious neglect.

*Flavoring*: The favorite theories of the patient, social, moral, theologic.

*Vehicle*: Faith. Authority of the church. Love of the marvellous. Attraction of the crowd. Enchantment of distance.

Misce secundum Artem. With TACT.

Such a prescription is not to be had in the tabloid form.

Some of these ingredients call for important practical remarks. Encouragement can hardly be used to excess, except in the mixed cases in which too absolute confidence in recovery might lead to neglect of essential hygienic or medicinal measures. Few circumstances are more encouraging than a steady gain in weight. Feeding is an adjuvant.

It is surely better to give a proper dose of quinin than to tell a patient he will not have a chill the next morning, although there have been cases in which the patient recovered after swallowing the prescription instead of the medicine.

The fixed idea of chronic obstruction of the bowels is quite as effectually abolished by a dose of calomel or castor oil as by the most elevating exhortations. And yet there have been cases in which——

But the dosage of sympathy is that which requires the most careful adjustment. Too many patients, the chronic invalids, the neurasthenics perhaps incorrectly diagnosticated, have already had from their friends, the mother, the sister, the clergyman, or the doctor, too much of that enslaving narcotic. It may develop the trivial injury into a traumatic neurosis. It may prolong the indolence or aboulia due to a temporary cause, the neurasthenia which a moderate rest will restore, into a useless and joyless lifetime; and yet it is very hard to withhold it. Absolutely to omit it may be cruelty and disaster. The patient already accustomed to the overdose who comes into the hands of the neurologist should not have it reduced so abruptly as to cause shock or revolt, but later it may be taken away with a firm hand.

It is evident that sarcasm and neglect are to be introduced into the prescription with the utmost caution, and, at that, only in the rarest cases after a careful diagnosis.

As to the "flavoring," it is that which in psychotherapy makes a great part of the difference between the sects. As in many other prescriptions, it is by the flavor alone that the patient thinks he knows what he is taking.

It is in favor of the present use of the word "psychotherapy" that as yet it carries with it no suggestion of a special theory, and it is to be hoped that its popular use will not warp and twist it into the trademark of an exclusive system. The normal and proper influence of the physician's instruction, the clergyman's kindly rebuke or words of cheer, must not be allowed to degenerate into a superstitious reverence.

Among these subjects there are two likely, from their comparative novelty and their distance from the commonplace methods, to awaken more discussion and difference of opinion than others. These are hypnotism and Freud's analytic method.

The power of hypnotism for evil and the range of its applicability for therapeutic purposes have undoubtedly both been exaggerated, certainly as regards ordinary everyday use. Whether its habitual use tends to weaken the normal will, whether under special circumstances it may be used for criminal purposes (explicitly denied by its advocates), and whether it may in rare cases get a control which other less sensational methods fail to secure, I do not undertake to say. The power of persuasion, with or without hypnotism, which one person may obtain over another either for evil deeds or virtuous determination, varies immensely. In alcoholism, for instance, in which special claims have been made, it may be reasonable, professional, or friendly inducements, or personal determination, which lead to the abandonment of the pernicious habit; and, on the other hand, it is only too well known that everything, reasonable or occult, punishment, deceptive medication, family distress, as well as hypnotism, utterly fail of any permanent result in a large proportion of cases.

The induction of sleep in cases of insomnia is well known to be a frequent desirable result of monotonous sounds and sights, that is, the cessation of all external stimuli and disturbing thoughts, a sort of hypnotic power not reckoned as a merit in the clergy.

The importance of hypnotism in the psychoses, with the exception of hysteria, in which it is little but a change of form, and some of the lesser ones, in which it is unnecessary, might be thought from the closeness of the relation between the remedy and the disease, to be at its maximum. By this time, however, there must have arisen from the experience of many candid or even enthusiastic men a most conclusive consensus of opinion that it has done nothing to displace in practice the non-hypnotic suggestion (to use an overweighted phrase), or in other words, the persuasion, instruction, re-education and suitable employment which are to-day among the most important resources of the enlightened alienist.

There are reasons why it is desirable to avoid hypnotism in ordinary use. The possible abuse for criminal purposes, the impairment of the patient's will, and the liability to induce too great dependence of the patient on the mere personality of the physician are not objections of great weight. As much may be alleged against powerful drugs, as, for instance, alcohol and opium.

Since nearly all other methods of reaching the mind of the patient depend on a confidence in the knowledge and professional skill of the physician, it is of great importance that he should not jeopardize his influence by a failure to hypnotize, and many high authorities agree that it is only a certain proportion of persons who are hypnotizable. An unsuccessful experiment will

materially impair the effect of the next attempt at rational persuasion.

Freud's method does not demand the induction of hypnotism, but an attitude of confidential trust evoked by long continued and careful questioning as to the earliest recollections which have given rise, through long trains of association, forcibly repressed or fallen below the threshold of present consciousness, to morbid psychic conditions largely of fear and depression.

The method has probabilities in its favor, but if it be possible in any given case to develop and strengthen what has been morbid suppression with its residue of doubt and fear into a complete rupture of associations, it would seem that such a short cut is preferable to the tedious questioning, which is almost certain to implant and vivify ideas of the very kind which it is desirable to get rid of. Some other plans of developing more speedily this desirable attitude of trust have been considered dependent on slighter grades of hypnotism, so-called hypnoidal conditions.

It is not necessary, if one intends to utilize the methods of Freud, to accept the extreme views of this acute psychic analyst, or to admit that every 'phobia has a sexual foundation. Even if it be true that this potent factor in the emotional life does not always, for very obvious reasons, receive the consideration it deserves, it is surely not the only one. Other motives, indeed, other motives which many a person prefers to ignore, may have as powerful an influence in the emotional development. It is necessary to accumulate a wider experience under different social conditions and with a greater variety of personalities before we accept so nearly an absolute connection between a single class of emotions and so narrow a clinical group.

By whom should the treatment be carried out? Obviously by the physician who makes the diagnosis, who should know better than any one else what is best adapted to the case, or else under his immediate direction, if he have the requisite characteristics, the good sense and the tact, which are of far more consequence than any details of method; if to an assured diagnosis he adds the firmness to carry out what he sees to be needed.

But it is true that he may be an excellent therapeutist and yet be lacking in some of the qualities desirable in the care of functional cases in general, as well as in the case before him.

Circumstances may be such that he can not undertake it. The method of Freud, for instance, demands a vast amount, not only of time but of patience, and although there are others which may lead to the same result more promptly, there are few of any kind which can be carried out by the physician in the dispensary or the general hospital. It is not every man who can listen sympathetically to a daily rehearsal of imaginary self-developed woes, or the maudlin details of a self-accuser.

It may be further noted that ignorance may have its advantages as well as its dangers. The complete diagnosis by exclusion is not always possible to every man in every direction; and between the same man acting as diagnostician and as therapeutist there can be no real intellectual gap. A nervous patient may be a shrewd observer. He may detect or suspect from the words or the manner of his healer that the diagnosis is incomplete and that the positive assurances are not quite sincere. There are few errors more mortifying, if not worse than mortifying, than overlooking an organic cause for symptoms which the patient must be assured are purely nervous. The scientist may be obliged to hedge a little for his own sake. But between the physician and his assistant, medical or otherwise, no matter how well instructed and loyal, there may be left a gap wide enough for doubts to shrink into the background and leave to the therapeutist the full advantage of absolute confidence in which the timorous patient can detect no weakness.

A very recent movement for combining the work of the physician and the clergyman, the diagnostician and the lay therapeutist, offers this among some other advantages. The bright light of enthusiasm, the uplifting of religious faith, the feeling of sympathetic companionship, perhaps a little of the "crowd madness," transform the scientific opinion into a moving force. Words of cheer, advice, appropriate music—one of the most powerful of emotional stimulants — may be addressed to dozens as well as to units and each may rightfully find his individual needs as carefully ministered to as if he had received a few hasty words and a scrap of paper from the hospital out-patient doctor, who can by no possibility give adequate thoughtful attention to each of his "nervous" clients.

It has been said, even by physicians, that an antagonism to psychotherapy exists among their brethren. It can hardly be true as regards the principle itself, but only against the extravagant claims based on a new nomenclature, against its misapplication, and especially the disgust with a multitude of quackish practices whose genetic relationship can not be denied, but with which all fellowship should be shunned.

The specialist who sees nervous disorders which, as he knows, depend on organic changes in the nervous structure, not naturally reprobates as absurd and often cruel the effort to make a patient believe that a proper frame of mind is alone sufficient to get rid of the tumor, the inflammation, the toxin, the degeneration. But he can only be thankful if the patient can be taught to use another set of muscles to accomplish lost movements, to bring his will to bear on what is normally done automatically, or at least to bear unavoidable defects and suffering as well as possible. But he ought not to be allowed to cherish ideas which he can be shown are morbid or baseless or to suffer incapacities which can be removed.

An objection to this alliance has been heard from the other side to the effect that the church is deserting its proper work in administering to the bodily as well as the spiritual wants of its disciples.

As to what the proper function of the church as an organization may be, it does not become me to express an opinion, but considering the example and teaching of its head and the zeal with which these have been followed by so many of his disciples with no disastrous results for nearly 2,000 years, the outlook does not seem to an outsider alarming.

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**Maternal Impressions.**—C. H. Melland, in the *British Journal of Children's Diseases*, states that the belief that the fetus may be influenced by impressions received by the mother during pregnancy is as old as history and, like other superstitious ideas which are the residue of deeply ingrained mental conditions dating back into the age of barbarism, it is displaced only with difficulty. Even in the present day, the possibilities of coincidence are greatly underrated, mainly because those cases are placed on record in which the cause and effect seem satisfactorily established, while the far more numerous instances in which coincidence fails to produce any startling effects are silently passed over.

# SANITATION IN THE PHILIPPINE ISLANDS SINCE AMERICAN OCCUPATION,

## WITH PARTICULAR REFERENCE TO REDUCTION IN MORTALITY BY ELIMINATION OF INTESTINAL PARASITES, ESPECIALLY UNCINARIA

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MANILA, P. I.

In response to the kind invitation of the Association to prepare a paper on tropical sanitation, it was not considered amiss to give a brief description of the work which has been done in the Philippine Islands, in order that the profession at home may be in a position to judge whether the same high standard achieved in Cuba and Panama and other American tropical possessions nearer home has been reached there.

The Philippine Islands are so far away from the United States and it so frequently happens that conditions there are not known that I will take the liberty of giving a brief description of the islands as they appeared at the time the United States took possession of them.

### GEOGRAPHY OF THE ISLANDS

The group is composed of about three thousand islands and extends from 21° 25′ latitude to 4° 45′ latitude, and from 116° to 127° longitude, has an area greater than the states of Pennsylvania, New York, New Jersey and Maryland, and has a coast line equal to that of the United States. There are two prevailing winds during the year, one known as the northeast monsoon, which blows almost continuously from November to April, and the other known as the southwest monsoon, which blows from April to November, the latter being the period during which the destructive typhoons occur. These conditions produce a climate which varies greatly in different portions of the islands, in fact, the rainy season on some parts of the eastern coast occurs during one monsoon period, and on the western coast during the other monsoon period. In general, it may be said that the dry season, in which there is an average rainfall in Manila of 379.5 millimeters, corresponds to the period of the northeast monsoon, and the rainy season, during which there is an average rainfall of 1,537.1 millimeters, corresponds to the period of the southwest monsoon. The temperature varies from an average of about 80 F. in the lowlands to an average of about 75 in the mountains of Benguet, where the summer capital of the Philippine Islands is located. The lowest temperature of the lowlands is about 65; the highest rarely goes above 95 F. In the mountains it ranges from 35 to 80. The conditions as to warmth and moisture are such that mosquitoes, other insects, bacteria and parasites thrive throughout the year, and cold, that great aid of the sanitarian of the temperate zone, is not available.

With the exception of three large valleys in the Philippines, the interior is very sparsely inhabited, most of the towns being found along the coast. Three valleys, the Cagayan and Dagupan, in the island of Luzon, and the Cotabato, in Mindanao, are traversed by great rivers, of which the Cagayan in Luzon is navigable for a distance of 200 miles. The soil in these valleys is as rich as any found in any portion of the world, but as yet the conditions are such that the mosquitoes breed in abundance.

### SANITARY CONDITIONS BEFORE AMERICAN OCCUPANCY

It is estimated that, at the time of American occupation, the population of the islands was about six and one-half millions, and the death rate so high that the population had been practically at a standstill for many years. There are no records in existence in the Philippines from which even a rough estimate could be formed as to what the actual death rate had been, but judging from the mortality at present, with the positive knowledge that a large reduction in the death rate has been brought about, it certainly must have been over 50 per 1,000.

At the time of American occupation, at least forty-thousand persons per annum died of smallpox. So far as could be ascertained by a careful sanitary survey, not one artesian well existed. The examination of water from practically every section of the Philippine Islands showed that all wells, rivers, springs and other surface sources contained amebas.

There was no sewer system in Manila, a city of over two hundred thousand inhabitants, and the night-soil and kitchen and other waste was disposed of in a most crude manner.

The water supply for the city was derived from a river, the watershed of which was inhabited by about ten thousand persons who considered it their inalienable right to bathe both themselves and their animals in the river and otherwise pollute the same.

In the city about thirty-one miles of esteros or canals existed which were nothing more than open, filthy watercourses into which all waste material, mostly liquid, found its way.

There was practically no provision for the care of the insane, a common custom being to tie them to a stake with a dog-chain.

About two hundred lepers were taken care of at San Lazaro and the Palestine Leper Colony for charity's sake only; four thousand or more roamed about the islands at will.

The remains of human beings were interred as many as four or five in one grave, the remains of former persons being frequently thrown carelessly about in order to make room for a more recent corpse.

Cases of and death from beriberi in penal institutions were very numerous. Malaria claimed its victims by the thousands. On account of there being no adequate quarantine system, diseases like plague, cholera, leprosy and smallpox were frequently introduced from the great infected centers of the Orient. Amebic dysentery claimed its victims by the hundreds without any hope of relief. Devastating cattle diseases were literally sapping the wealth out of the country. Great epidemic diseases like cholera sometimes claimed as many as a thousand victims a day in the city of Manila, and at times are said to have depopulated entire villages. Bubonic plague was found in Manila some time after American occupation.

### SANITARY CHANGES

Pleasing as it might be to state that all the foregoing conditions have now been entirely eliminated, yet in all candor it must be said that the work is so enormous, the funds so inadequate, and trained helpers so few that much yet remains to be done. Yet when it is remembered that the Philippine Islands are eleven times larger than all the remaining tropical possessions of the United States, that it requires over six months to have

even small requisitions for supplies from the United States filled, and that their financial resources are meager, it will not be considered strange that the conditions have not yet become perfect.

Soon after occupation, the general campaign of cleaning and scrubbing so characteristic of the American sanitarian was at once inaugurated throughout the islands. The health requirements were crystallized into compact shape and enacted into laws. About three hundred boards of health were organized, so that the needs of the different municipalities could be systematically studied, and the results enforced. Garbage collection, sewage disposal, street sweeping, the isolation of dangerous communicable diseases, etc., all received attention, and improvement soon became everywhere apparent.

The vaccination of over six million people in a more highly educated country with the best transportation facilities would be no small undertaking. The work in the Philippines was begun by permitting each municipality to vaccinate on its own account, but after several years' faithful trial this scheme was abandoned, and a plan of systematic vaccination by groups of about twenty-five vaccinators directly under the charge of a competent physician was started in various parts of the islands. The plan found to work best was to commence on the border of a province and systematically work across it until every person was vaccinated. In the provinces near Manila, which represent a population of about a million, there were formerly six thousand or more deaths from smallpox annually. Last year after the systematic vaccination was completed, not one death occurred from smallpox.

To-day dozens and dozens of artesian wells exist, and in many localities the death rate has dropped as much as 20 per 1,000 after the use of artesian water became general.

The new gravity water system, which brings water from an uninhabited watershed, will be completed July 1, 1908. The new sewer system for Manila, which is being constructed at a cost of nearly $2,000,000, will be ready for use next year. In the meantime, however, the sewage is being disposed of in a system of septic tanks which are as effective as could be desired, and have deservedly earned for Manila the name of the city without odors. There is no longer any pollution of the canals or the Pasig river. The thirty-one miles of esteros or canals have been dredged and cleaned of the filth which accumulated during the several centuries. The moat which surrounded the walled city has been filled up, and is now being parked. Thousands on thousands of malodorous wooden structures used over tight vaults have been replaced by the modern enameled closets, and hundreds of acres of lowlands have been raised above tide level and drained. The present watershed is patrolled by United States troops to prevent pollution of the water supply, and a modern ice plant produces daily 100,000 pounds of ice and 5,000 gallons of distilled water, which is sold to the public by the Government at a nominal rate.

Hygiene is taught in the 3,500 public schools of the islands, and the simple rules of health are repeated like a catechism in thousands of Filipino homes.

A hospital of 160 beds was promptly established for the treatment of civil employés, and over half a million dollars have now been appropriated for a new hospital which will not only be large enough to meet the needs of the government employés, but will be used as a general hospital as well. The same is now actually under construction. A modern hospital building for the insane is already completed, and facilities are available for the care of 500 of those unfortunates.

In the establishment of the leper colony on the island of Culion one of the most extensive segregations recorded in history is being undertaken. Of the 4,000 estimated lepers in the Philippines only about 1,000 remain to be collected. (It may be remarked in passing that the policy of segregating lepers will apparently be fully vindicated. Our experience during past years has been that in those provinces from which the lepers were removed and in which more than 300 new cases have appeared annually, not more than fifty new cases were found.)

The burial of the dead is now properly regulated in over half of the provinces.

The free distribution of quinin has greatly reduced the incidence of malaria. Some drainage and other mosquito extermination has been undertaken, but lack of funds and trained assistance has prevented much headway in this direction.

Great advances have been made in prison sanitation. Diseases like beriberi have been almost eliminated and the death rate brought down to normal.

The management of that great devastating disease, cholera, has been so perfected that even with the funds and help available in the Philippine Islands only dozens now succumb where hundreds died heretofore, and almost positive assurance can be given that the disease can be eradicated from any community in a period of a few weeks. This last fact has done much to allay public apprehension; panics of fear have entirely disappeared, and a community in which cholera makes its appearance moves along in the even tenor of its way as if nothing unusual had happened.

The foregoing sanitary measures, as well as many others too numerous to mention, have produced the same satisfactory results that have heretofore been recorded in other communities in which they have been faithfully applied; the death rate has no doubt been reduced by ten or more per 1,000, which in itself means the saving of many thousands of lives. The morbidity has also been lessened, but even after all of this was brought about the feeling still remained that more should be accomplished.

However desirable the necessary cleaning up and ordinary sanitary measures may be to a community, still our experience in the Philippine Islands leads us to believe that such work alone is not nearly so effective in improving the public health as has heretofore been believed to have been the case. Experience in eradicating yellow fever from Cuba by the elimination of the mosquito and not by the removal of filth, the destruction of the rat for the eradication of plague, the killing of anopheles for the suppression of malaria, all go to demonstrate that there are other more important factors to be taken into consideration than the mere cleaning up in improving the public health.

### CAUSES OF MORTALITY

Practical work and experience change many apparently well-grounded theories.

In casting about for the cause of the still high mortality in the Philippine Islands two factors seem to stand pre-eminently to the front. One is the infant

mortality, and the other intestinal parasites. After some consideration, infant mortality was dismissed because this is a subject which is much the same all over the world, and has been given much study and attention by persons working in communities where ample funds and trained help are available, and still no great progress has been made, so that we concluded to take up the question of intestinal parasites first.

A fortunate incident occurred at this time which aided materially in the study of this problem. The death rate in Bilibid Prison under the administration of laymen had increased from year to year until the appalling figure of 238 per 1,000 was reached. The management of the sanitation of the prison was then transferred to the Bureau of Health. Ordinary sanitary measures, like relieving the overcrowded condition, improving the methods for the disposal of night soil, regulating the diet along scientific lines, improving the drainage, etc., in a period of six months succeeded in bringing the mortality down to about seventy per 1,000; but persistent efforts carried on for nearly six months more failed to lower it further. Prisoners seemed to be dying from illnesses which should not have killed them. At this juncture a systematic examination of the stools of prisoners was begun. The same was undertaken by examining all the prisoners in a brigade, usually 300 in number. In the first batch examined most astonishing figures resulted.[1] Eighty-four per cent. of the prisoners were found to be afflicted with at least one intestinal parasite, 50 per cent. had two or more, and 20 per cent. had three or more, and of the total number examined 52 per cent. had hookworms.

Active treatment for eliminating the intestinal parasites was begun in one brigade, and after this work was completed it was noted that the incidence of disease in this brigade was much less than among the remaining brigades which had not yet been so treated. The work was actively continued until all the prisoners, numbering over 3,500, were examined and the intestinal parasites removed. The percentage of parasites in the remaining group was about the same as that given for the first brigade. After the treatment was well under way the death rate in the prison gradually commenced to fall, and several months after the intestinal parasites from the last prisoner under observation had been removed the death rate dropped to thirteen per 1,000 and has remained so up to the present time, a period of over a year. These figures show in a most convincing manner the effect of the intestinal parasites on the general health. It seems probable that they so reduce the resistance of the individual that he becomes a ready victim to any intercurrent disease which he may contract.

Records of over 1,000 stool examinations made of persons at large in the Philippine Islands show that practically the same condition of affairs exists among the general population and that as soon as the intestinal parasites of the inhabitants can be removed and the environment made so that they will not readily become reinfected it may be confidently predicted that the death rate in the Philippines will be lowered to figures corresponding closely to those in temperate climates.

It will thus be seen that the magnificent work which has been done in connection with intestinal parasites by Stiles Loos, King, Ashford and others has pointed the way toward a sanitary reform which will no doubt stand in medical history as one of its greatest triumphs.

1. Shattuck and Garrison before the Philippines Medical Association, 1908.

# CRANIAL TECHNIC *

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The most frequent causes of death following operations on the brain are shock and sepsis. Shock is given by Horsley as the cause in 8 per cent. of tumors diagnosed and removed and in 37 per cent. of those inaccurately diagnosed and not removed. Sepsis increases just in proportion as one is obliged to drain and is unable to heal by primary union; 30.8 per cent. of deaths is the usual proportion.

## THE PRIME REQUISITES

To avoid these dangers the following five requisites must be secured:

1. Instruments which will open the skull quickly over any desired area and to any extent. The preferred instruments are the motor, saw and guard, osteotome, drill, fraise and measure used by me.

2. A method of craniocerebral topography which will permit an accurate exposure of the intended cerebral area. It should be so accurate that the flap is neither too large nor too small. Chipault's is the best method, as it adapts itself to the skull of all ages, races or individual peculiarities.

3. Osteoplastic flaps cut so that they will expose the desired area in the easiest manner.

(a) For the lateral region the flaps radiate like the leaves of a fan, the broader part being toward the vertex, the narrower extremity or hinge at the temporal fossa. These flaps are frontal, rolandic, parietal or occipital. They are four-sided as

(b) For the exposure of both sides at once, bilateral flaps with their hinges in the temporal fossa, or single flaps with their hinges in the median line, are used. These flaps are either frontal, sagittal, occipital or occipito-cerebellar. The bilateral flaps are four-sided as The single flaps are usually six-sided as

4. The replacement of the bone flap in every possible case or the covering of the defect with an accurately fitting foreign material (celluloid or aluminum). I prefer autoplasty to heteroplasty because bone implanted when still in connection with its periosteum undergoes an immediate reparation if the circulation is not disturbed. Where the apposition is the most intimate, there one will find the least disturbance in healing, the slightest bone absorption, and the surest safeguard against infection. Necroplasty is my second choice.

5. The assurance of a perfect hemostasis both in the preliminary as well as in the final steps.

These five points are to be mastered in any operation in which the cerebrum is exposed for the removal of a tumor, the draining of an abscess or cyst, or for the relief of an injury.

I would divide every operation into two steps, in which the preliminary step concerns only the skull, etc., and the final step, the cerebrum.

## OPERATION—I. PRELIMINARY STEP

All drugs are given up several days before operation.

A record of pulse rate and blood pressure is taken twenty-four hours before operation.

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

The patient's head is shaved twenty-four hours before operation and Chipault's measurements made, recorded and marked with a fuchsin pencil on the scalp just before operation. Chloroform is preferred, though ether is often used if the head is raised over 30 degrees.

The patient is placed on the table with the head of the table raised between 15 and 30 degrees. This position has been sufficient to stop the bleeding from the veins and to lower the arterial pressure. I have so far not been able to compare its value with the rubber suit and temporary compression of the common carotids (Crile) or with the sequestration-anemia proposed by Dawbarn. If either of these methods will improve the arterial pressure in greater amount than elevation alone, and with no greater danger of inducing sudden syncope, I shall certainly use them.

The sphygmomanometer is placed on the arm and blood pressure is recorded by the anesthetist. A sudden fall of blood pressure will warn the operator of an impending collapse. Horsley says that attention to this point will permit us to avoid the 25 per cent. of the sudden deaths following prolonged operations, and will force on us the necessity of two-stage operations.

The tourniquet is applied. I prefer one based on Lambotta's idea of a local anemia in the scalp. If this is not used, buttonhole stitches, Kredel's plates and the T-forceps of Chipault may be used.

The flaps are either four or six sided. Each limb is cut with a single stroke of knife. The periosteum is retracted on the bone surrounding the incision only.

A drill is applied to each angle (4 or 6 holes) and the depth of the holes is measured. If the disparity between holes is greater than 2 mm., that is, 3 or 4 mm., one or more holes should be interposed and measured. Thus it may be ascertained whether the incline between holes is gradual or abrupt. If gradual, the saw should be armed with guard for 2 mm. less than largest measures and the bone divided with the saw at right angles to the bone-surface. If abrupt, the saw should be placed at an angle of 10 to 30 degrees to the bone, which diminishes the depth of the saw cut over the perpendicular cut about 2 mm. more. In this manner injury to the dura may be avoided without changing the guard even when the disparity between holes is as great as 4 to 5 mm. If one prefers, the guards may be changed, or two saws with different guards may be used. I always purpose to leave an uncut area of bone over the dura of at least 1 or 2 mm. If muscular tissue is very thick I use a fraise attached directly to the motor or by means of a short cable.

An osteotome (McEwens) is inserted into the slit, and with a few strokes of the mallet the bone (that is, the vitreous plate) is cracked. The point of inserting the osteotome is where the bone is the least divided. The bone is now lifted from the dura by 2 to 3 spud-like instruments, two of which are always placed near the desired line of breakage. When these are inserted a movement of depression to break the bone is made rapidly and with some force in order to snap this exactly between the two drill-holes.

Hemorrhage from the bone now requires attention. I make use of (*a*) Horsley's wax, consisting of vaselin 50, paraffin 50, and phenyl 5 parts; (*b*) decalcified bone plugs; (*c*) boiled wooden match-sticks; (*d*) cotton wool; (*e*) crushing forceps.

The reflected flap is protected by a towel and the dura mater is exposed.

### II. FINAL STEP

The condition of the dura is now noted: (a) its change in color; (b) its vascularity; (c) its thickenings; (d) its inflammatory changes, and (e) its pulsation or want of pulsation.

If the pulsation is wanting a tumor, pus or blood between the membranes, or severe contusion of the brain is suspected.

The dural flap is cut 1 cm. from the edge of the bone and on all but one side of the exposed area. This flap is lifted, and the tumor or disease is revealed immediately if it arises from the dura, the tentorium cerebelli or falx cerebri. The tumor or disease arising from this structure either pushes aside the convolutions and forms a bed for itself or it infiltrates the cortex or bone. The former is usually a fibroma, a syphiloma, a tuberculoma, or a traumatic or a hydatid cyst, while the latter is sarcomatous or the diffuse variety of tuberculosis or syphilis. If the process arises from the pia or cortex, the tumor or disease appears as (1) a vascular prominence surrounded with edematous brain tissue; (2) an encapsulated non-vascular mass; (3) a cyst containing serous or bloody fluid.

Growths of the first variety, among which are included angiomata and the racemose aneurisms, demand the most careful ligation of the vessels about their periphery before any attempt at enucleation is undertaken, as hemorrhage into the brain tissue favors infection (encephalitis) and destroys the tissue. Growths of the second variety (fibroma, tuberculoma, endothelioma) can be enucleated with a spatula if care is taken to avoid injury to the cortical tissue.

The cysts found here are congenital, traumatic, gliomatous or sarcomatous. So deceptive are the latter two varieties that the inner side of the whole extent of every cyst should be examined for tumor tissue. For the congenital cysts or those of unknown origin, long-continued drainage has been curative. For the traumatic and sarcomatous cysts, extirpation of the cyst wall is necessary. In the case of the latter, some brain tissue is usually sacrificed. These cysts are liable to be multiple and to have many prolongations, so that they must be followed at times a great distance from the original area exposed.

Tumors or diseases situated in the subcortical area are located by puncture, if liquid; by palpation, with or without incision, if solid, or by electric stimulation. They are found at a distance of 1 to 6 cm. from the cortex, and the convolutions over them may or may not be flattened and the sulci effaced. The solid tumors are usually gliomata and sarcomata, while the liquid tumors are congenital, of unknown origin, or are classed as traumatic, porencephalic cysts. These cysts are curable by drainage alone, though extirpation, if advisable, would more surely cure them. Encapsulated solid growths are extirpated with resection of enough brain tissue to insure tamponade of the cavity and to avoid the possibility of recurrence.

Diffuse processes, tumors, scleroses and multiple hydatids are inoperable, except in so far as removal of a part may relieve symptoms of pressure. This can be done only when the hemorrhage is not liable to be great and where the lateral ventricles can be avoided.

During the second part of the operation two accidents are liable to occur, namely, hemorrhage and opening of the lateral ventricles.

Every vessel must be ligated carefully before cutting. This should be done in a delicate manner and without traction on the vessel in tying the knot. One knot is sufficient. Mosquito-forceps or a round needle, armed with a pliable ligature, is the best. Capillary hemorrhage is managed with moist gauze at 115 or 120 degrees applied to the area. Venous hemorrhage or oozing is treated by administering oxygen.

The longitudinal or transverse sinus or any large vein is closed by the total or lateral ligature or by suture. If hemorrhage can not be controlled in this manner, the best results have been obtained by tamponade and compression by the flap replaced.

The reason for careful hemostasis in this stage is (1) to limit the injury to the cerebral tissue by the blood infiltration; (2) to avoid the application of heat, and (3) to avoid the use of the tamponade. Careful hemostasis limits as well the danger of a late encephalomeningitis.

The second accident occurring during this stage is the opening of the lateral ventricles and the escape into them of the fluid washing, of the detritus of the tumor or of the brain tissue or of blood, which will form a nidus of infection. The mere opening of the ventricle, if one can see it at the time and avoid its infection by the admission of foreign material, is not dangerous.

If the operation has proceeded without accident and hemostasis is complete, the dura is sutured, the bone is replaced and the skin is sutured. A primary union is the rule. If the wound must be tamponaded or drained, the bone flap is either cut away to give exit to the tampon or drain, or the flap is replaced over the tampon for forty-eight to fifty-six hours and then is lifted, the tampon removed, and a small rubber drain or gauze substituted for it. After this the dural flap is sewn and the bone flap replaced and sutured except at exit of the drain.

### POSSIBLE LATER COMPLICATIONS

During the after-treatment certain accidents may take place: 1. Shock may be seen in prolonged operations with hemorrhage or after large tumors have been removed and the cerebral statics have been changed by the space left. In such conditions the acute cerebral edema of von Bergmann occurs. To avoid this, Horsley tampons and gives counter-pressure through the flap.

2. Hyperpyrexia: This occurs after both severe and moderate handling of the brain, especially if the ventricles have been opened. The cause is toxicity of the products of secretion of the neoplasm, infection itself or lesion or irritation of the thermal centers.

3. Encephalomeningitis may be caused by injury to the cerebral tissue or by infection from the patient's blood or from without. It is usually seen during the first month after operation, coming on slowly and announced by localized convulsions, contractures, paralyses, somnolence, mental torpor or delirium.

4. Hernia may be present at time of operation as a tumor of the base or as a voluminous tumor of the centrum ovale, or at a later period in the form of encephalitis.

### OPERATIVE RESULTS

1. *Operations on the Cerebrum.*—(*a*) Krause and Oppenheim[1] give statistics of 27 tumors of all kinds. Of the patients, 11 per cent. were cured, 22.2 per cent. improved and 55.5 per cent. died.

(*b*) Horsley[2] gives accounts of 55 tumors of all varieties. The regionary mortality was as follows: Motor zone, 3.7 per cent.; parietal zone, 5.26 per cent.; frontal zone, 7.69 per cent.; temporal zone, 8.3 per cent. The recurrence and mortality, according to tumor, disease, etc., were as follows: In glioma and sarcoma, 87.7 per cent.; in endothelioma, 12.5 per cent.; in tuberculoma, 50 per cent.; in gummata, none; in fibromata, none, and in cysts, none.

(*c*) Duret[3] reports 400 cases of all kinds, of which more than one-half were gliomata or sarcomata. The mortality was 19.5 per cent. The patients cured were 7 to 8 per cent.; those benefited by amelioration in the headache, vertigo, stupor, convulsions and paralyses, were 73.25 per cent. There was restoration of vision in 60 per cent. of the cases; partial restoration of vision in 28 per cent., and life was prolonged for several months in 33.5 per cent.

(*d*) Alessandri[4] gives 22 cases of tuberculomata, in which 86.36 per cent. of the patients were cured.

(*e*) Duret[3] gives accounts of 33 cases of tuberculomata, in 69 per cent. of which cures were effected.

(*f*) Stransky[5] reports 18 cases of syphilis. In 15 cases the lesions were gummata. Of these patients 60 per cent. were cured or greatly improved; 40 per cent. were not benefited because the diagnosis was not accurate and the gumma not found or the process was too extensive. Of 3 patients with pachymeningitis, 33.3 per cent. were cured.

2. *Operations on the Cerebellum.*—(*a*) Horsley[2] gives the regionary mortality as 10 per cent.

(*b*) Alessandri[4] reports 6 cases of tuberculomata, in which 33 per cent. of the patients were cured for 2½ to 10 months.

(*c*) Borchardt[6] gives accounts of 101 cases of glioma, sarcoma, etc. Of these patients 11.8 per cent. were cured; 16.8 per cent. improved; 11.8 per cent. died as the result of the operation, and in 59 per cent. of the cases the lesions were not found. He also gives 14 cases of cysts, in 92.8 per cent. of which cures were effected, and 21 cases of tuberculomata, in which 57 per cent. of the patients died of shock; 38 per cent. withstood the operation, of which 37 per cent. died of miliary tuberculosis, and 63 per cent. lived from 4 to 13 months.

(*d*) Stransky[5] reports 2 cases of gummata, with a mortality of 50 per cent. and 50 per cent. completely cured.

*Cerebellopeduncular and Acoustic Nerve.*—(*a*) Borchardt[6] reports 19 cases of fibromata. Of the patients, 15.5 per cent. were cured, 5.5 per cent. lived over one year, and 73.5 per cent. died. In 5.5 per cent. the fibroma was not found and not removed.

(*b*) Krause[7] gives 9 cases, with 66.6 per cent. of cures and a mortality of 33.3 per cent.

*Pituitary Body.*—Horsley[2] reports a mortality of 33.3 per cent., 66.6 per cent. cures from operations for adenoma and adenosarcoma.

From these statistics of cranial surgery the following conclusions may be drawn in regard to tumors. In glioma and sarcoma, recurrence and mortality is the same as in other regions of the body.

1. Wien. med. Wchnschr., 1906.
2. Lancet, 1906, viii, 52, and Jahrsbericht für Chirurgie No. XII. 1906. p. 402.
3. Tumeurs de l'encéphale.
4. Ann. Surg. 1906, ii.
5. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906.
6. Arch. f. klin. Chir., lxxxi.
7. Arch. f. klin. Chir., lxxxi.

In regard to tuberculomata, statistics are as yet bad and uncertain in compilation. Surgery, when indicated, is better than serum therapy.

In syphilis, surgery is good enough to be tried after six weeks to three months of medicinal treatment.

Fibromata, non-malignant cysts and endotheliomata offer the best curative results and the slightest mortality. The endotheliomata recur in 12 per cent. of the cases.

The statistics on the operative treatment of meningitis lead to the following conclusions: Diffuse tuberculous and syphilitic meningitis offer no chance for surgery.

In circumscribed tuberculous and syphilitic meningitis Alessandri's and Stransky's statistics show a favorable percentage.

Circumscribed suppurative meningitis from trauma or extension from nose, throat or ear is curable.

In 10 cases out of 15 of otitic origin the patients were cured (Hinsberg[8]).

McEwen reports cures in 6 out of 12 cases.[9]

Amberger[10] and Witzel[11] report cures in 2 cases of traumatic origin, the one from a punctured wound of the cervical portion of the spinal canal, the other from a fracture of the base of the skull involving the temporal bone.

Diffuse suppurative meningitis has been apparently cured by Poirier, Witzel[11] and Kümmel.

Surgical treatment demands a more extended application.

Statistics on encephalitis show that five patients were cured last year of traumatic encephalitis.

When symptoms of pressure exist and the disease or the tumor is not or can not be removed the operation for decompression is indicated for the following reasons:

1. It is an operation without danger.

2. The optic atrophy disappears in 6 to 8 weeks if operation is early, according to de Schweinitz.[12]

3. According to von Bergmann,[13] the patients in 65 per cent. of cases have shown amelioration of cephalalgia, stupor, vomiting, convulsions, paralysis and optic atrophy, for periods ranging from 1 month to 1½ years.

4. Borchardt[6] says that in "pseudotumors and meningitis serosa with hydrocephalus it has been curative."

The operation may be performed (a) in the right parietal region, according to Sänger,[14] (b) in the right parietal region with a 6x8 cm. removal of bone, according to Frazier,[15] (c) in the right temporal region with vertical incision on one or on both sides, if thought necessary, according to Cushing,[16] and (d) in the cerebellar region, according to Weisinger.[14]

In any case the dura may be excised, divided or left intact. Opinions are divided.

The rule is to operate where a tumor is suspected. If a diagnosis of location can not be made, select one of the three regions—temporal, parietal or cerebellar.

The time for operation is the beginning of optic atrophy.

No mention has been made in the paper of the operations on the cerebellum. This omission is purposely made, because I am not yet satisfied that the technic is what it ought to be nor have I anything to suggest which is any improvement on the methods already initiated by Horsley, Krause, Cushing, Frazier, Borchardt or Wiesinger. Thirty-two lantern slides were used to demonstrate the method of flap formation, etc.

61 West Forty-Ninth Street.

8. Ztschr. f. Ohrenh., 1906, No. 50, p. 261.
9. Infectious Diseases of Brain and Spinal Cord.
10. Beitr. z. klin. Chir., xlviii.
11. Verhandl. d. deutsch, Gesellsch. f. Chir., xxxiv.
12. Univ. Penn. Med. Bull., 1906.
13. Traité de chirurgie cérébrale.
14. Zentralbl. f. Chir., 1906, No. 47, p. 1256.
15. Univ. Pennsylvania Bull., 1906.
16. Surg. Gynec. and Obst., 1905, No. 5.

## INTRACRANIAL COMPLICATIONS OF ACUTE AND CHRONIC MIDDLE-EAR SUPPURATION

### THEIR SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT *

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As I have several times written on one or more phases of this topic, I must ask your indulgence if I repeat statements that have already been presented in previous communications. The reason is obvious; first, because there is nothing new on the subject, and second, because the ground has been amply covered by many of our co-workers in this field during the past three or four years.

In discussing the intracranial complications of otitic origin, I shall place them in the order in which I have most frequently encountered them, which is as follows:

1. Pachymeningitis.
2. Epidural Abscess.
3. Thrombosis of the Sigmoid Sinus.
4. Meningitis of the Serous Type.
5. Thrombosis of the Jugular Bulb.
6. Thrombosis of the Internal Jugular Vein.
7. Brain Abscess, Middle and Anterior Fossa.
8. Cerebellar Abscess.
9. Meningitis of the Purulent Type.
10. Encephalitis.
11. Subdural Abscess.
12. Thrombosis of the Petrosal Sinuses.
13. Thrombosis of the Cavernous Sinuses.

### PACHYMENINGITIS, KNOWN AS PACHYMENINGITIS EXTERNA

*Cause and Site.*—This condition occurs usually as the result of a suppurative process extending from the middle ear and mastoid cells through the inner plate of the temporal bone. Its most frequent seat of occurrence in acute cases is the dura covering or adjacent to one or more portions of the lateral or sigmoid sinuses. Its second site in order of frequency is the dura covering the lateral surface and floor of the middle fossa; and in this region it is also the result of an acute process. The third common site, where the lesion occurs as a result of a chronic middle-ear suppuration, is in the region of the tegmen tympani.

*Symptomatology.*—The one prominent symptom complained of is headache, corresponding to the inflamed dura. This head pain is nearly always aggravated by exercise. There is extreme irritability of temper, and if a larger area of dura is involved, the patient exhibits twitching, drowsiness at times, intolerance of light, and in the severe type of cases, intermittent delirium, especially at night. Combined with these are the symptoms usually associated with the severe types of mastoiditis.

*Diagnosis.*—It is not often that the diagnosis is made prior to a mastoid operation, as, in the vast majority of cases in which a pachymeningitis exists, the lesion is not discovered until the operation on the mastoid bone

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

is done. When it is suspected, it is because of the character of the pain, which is more severe and lasting than in uncomplicated cases of mastoid disease. When the disease is situated in the region of the tegmen, the pain is of a severer grade, lasting longer, radiating over a larger area, and the photophobia is more pronounced.

*Treatment.*—Every vestige of diseased bone adjacent to the inflammatory zone should be removed. If the bone is covered by firm granulations these should not be molested, as this is an attempt of nature to combat the disease. If, however, the area is covered with soft broken-down granulations, they should be curetted away and the parts rendered sterile by flushing with a warm saline solution, followed by absolute alcohol with a final saline flushing following the alcohol. A dressing of plain sterile gauze moistened in a normal saline solution is placed loosely against the exposed dural area. In cases where a large dural space is exposed, the dressings should be changed frequently, as a wet dressing in contact with the dura is more comfortable than a dry one.

### EPIDURAL ABSCESS

*Cause and Site.*—This is a very common complication of mastoid disease. Its most frequent site is over and around the sigmoid sinus. When in this situation it is referred to as a peri-sinus abscess. Its site of next frequency is the region of the tegmen antri, and the abscess may extend all along the floor of the middle fossa. At times it is very extensive, extending posteriorly over a large area of the cerebellum.

*Symptomatology.*—In addition to the ordinary symptoms of involvement of the mastoid bone, the pain present is of a severer type, throbbing in character, and more persistent. The temperature during the disease is higher, there is more frequent vomiting, and all the symptoms usually present in a simple mastoid are aggravated to a marked degree. There is extreme restlessness at night, inability to sleep for any length of time on account of localized head pain, drowsiness, and in advanced cases, stupor. In many of the cases well-developed chills are present, with considerable fluctuation of temperature.

*Diagnosis.*—This is usually made at the time of the mastoid operation, although in well-developed cases it may be determined prior to the operation by the marked severity of the symptoms, the excessive degree of tenderness on pressure, and percussion over the accumulation of pus. A physical sign which aids in diagnosis, especially in cases of long standing, is the presence of swelling and edema of the soft parts externally, corresponding to the pus areas within. A differential blood count is of value, as here the proportion of polynuclear cells is higher than in an uncomplicated mastoiditis.

*Treatment.*—There can be but one successful method of treatment of this condition, and that is to remove all diseased bone adjacent to it; no matter how extensive it is or where it leads to, it should be removed, and the field of operation treated in the manner described under pachymeningitis.

### THROMBOSIS OF THE LATERAL OR SIGMOID SINUS

*Cause and Site.*—This complication is met by the otologist very frequently. It may be complete or partial, of the whole or of any part of the sinus or its adjacent blood currents, and may result from an acute or chronic suppuration of the middle ear. It is however, more frequently associated with a chronic purulent condition, or an exacerbation of such a condition. When complicating an acute middle-ear involvement, the infection is usually of a virulent type.

In reviewing the symptomatology, I shall follow my usual custom and speak of it from a clinical standpoint, under three separate headings. While not all cases can be definitely grouped under this classification, the majority can, and it is for this reason that I make the following clinical distinction. First, the typical cases; second, the atypical, and third, the cases in which the bulb and sinus are primarily involved without macroscopic disease of the mastoid process.

*Symptomatology—Typical Case.*—Temperature is one of the most important symptoms, and ranges from normal to 106 and higher, quickly followed by a remission to near the normal point or below. There may be one rise or several during twenty-four hours, depending upon the rapidity and the quantity with which the infection enters the general circulation. If the patient be kept under observation for several days, these exacerbations of temperature become more frequent and the variations greater.

Chills are present in about 50 per cent. of the cases, preceding the rise in temperature, and in well-advanced cases followed by profuse sweating. Many patients exhibit no chill, and only complain of a chilly sensation, and this is frequently overlooked. In a postoperative mastoid case, with frequent variations of temperature, these chilly sensations are as important as though a distinct rigor were present.

When the temperature is high, there is a corresponding rapidity of the pulse-rate. Respiration remains unchanged except during the hyperpyrexia. Pain is more pronounced than when an uncomplicated mastoiditis exists and is referred to the occipital region. Where the internal jugular vein becomes infected early, there is pain along its course, due in all probability to an infected chain of lymph glands in that region.

Nausea and vomiting are usually present to a moderate degree during the stage of development, becoming more pronounced as the infection progresses.

Intraocular symptoms are present in about one-third of the cases. The earlier the patient is seen and operated on, the less frequently are they observed. If the infection has extended to the cavernous sinus, there is swelling and fulness of the eye and lid of the affected side.

Cerebration is normal except in advanced cases.

Among general symptoms are loss of appetite; dry, coated tongue, and dryness and yellowish tinge of skin, indicative of pronounced sepsis.

*Physical Signs.*—Edema is occasionally present over the mastoid region to a greater extent than in a simple uncomplicated bone involvement. In advanced cases there is marked stiffening of the muscles of the neck on the affected side, and the patient's head is drawn well over to the shoulder of this side. Combined with this, there is a well-marked rigidity of the muscles in this region. In a few cases where the vein is involved, it gives the impression of a hard cord-like swelling in the neck, but this physical sign is by no means so frequent as many of the text-books on this subject would have us believe.

*Symptomatology—Atypical Case.*—Atypical cases usually develop a few days after the mastoid operation. There is loss of appetite; the patient becomes restless and irritable; the tongue is dry with a thick coating in the center. There is a gradual increase in the pulse-rate from 100 to 130 per minute, and a slow but gradual rise in the temperature to 103 F, or 105 F, or higher;

and this may remain so for several days. In many cases it will not vary a degree in twenty-four to forty-eight hours; in other cases there is a little more variation, but there are no sudden fluctuations. The patients complain of nausea and headache and are unable to sleep for any length of time. There is no chill or chilly sensation observed. There is marked irritability of temper; this is followed by drowsiness with sweating. The skin at first is dry, and later becomes yellow.

*Physical Signs.*—One of the signs which I consider of great value is, that the mastoid wound in the early stages of the disease is healthy and covered with granulations, except over the bone of the inner table which forms the sigmoid groove. This bony area is darker in color than it was at the time of the operation, and there are no granulations over any part of it. All the rest of the wound cavity shows evidence of healing. Should the infection progress, an entirely different condition will be found at the end of two or three days. The parts that before looked healthy will now look pale, and the granulations will have begun to soften and break down, while the bone overlying the sinus will be still dark in color, with no evidence of repair. If the sinus is exposed at the time of operation, the overlying dura appears grayish; there is an absence of luster, and often it is covered with a plastic exudate which is compressible if pressure is applied over it.

### PRIMARY BULB THROMBOSIS

This occurs usually in young children as a consequence of an acute purulent otitis, the result of a direct infection from the tympanic cavity through the floor of the tympanum to the jugular bulb. This explanation is logical if the fact is borne in mind that in a certain percentage of skulls of young children and adults, an unusually high dome is found encroaching on the middle-ear cavity; a dehiscence also not infrequently exists in this region. Under these conditions it can easily be comprehended how an active purulent infection of the middle-ear cavity can involve the blood current—finding its way through the small veins and lymphatics or by absorption through the parchment-like bone in this region, without first pursuing its usual course through the cellular structure of the mastoid bone.

*Symptomatology.*—Temperature rises rapidly from normal or thereabouts to 105 F or 106 F or higher, with a sudden remission to near the normal or below. It may remain below for several hours and then quickly rise to the high level, with as rapid a decline as before.

Pulse ranges from 110 to 160 or higher per minute, depending on the age of the patient.

Chills are not observed. Prior to the rise in temperature many of the patients have cold hands and feet; they are fretful, and extremely irritable and drowsy. The eye signs are negative. If this temperature range be permitted to go on for several days, these patients exhibit all the signs of a general sepsis. There is a phase of sinus disease in children and adults which should be carefully noted because it is so misleading and so frequently causes the postponement of an absolutely necessary operation. I refer to that period of the disease which is seen in a majority of cases during the temperature remissions, for at this stage I have often been misled by the patient's apparent improvement. During my earlier years of observation it was most difficult, and at times impossible to understand why, if the patient was suffering from such a serious condition, he should feel so well between the rises of temperature. A closer study of the cases, however, taught me that the rise in temperature could be explained on the theory that some of the infective material from the sinus was being thrown into the general circulation by way of the internal jugular vein, causing a general systemic poisoning. When this occurred, the chill, temperature, nausea, vomiting and drowsiness were observed; but as soon as the major portion of the toxins had been eliminated the patients felt better; there was a subsidence of all former symptoms until sufficient toxic material from the seat of the thrombus was again disseminated throughout the general circulation. If such a case be allowed to progress without surgical interference these symptoms recur with greater and greater frequency until operative measures would be useless to save life.

### DIAGNOSIS

In typical cases it is based on the temperature changes, with the chill or chilly sensation preceding the rise in temperature following the mastoid operation. In many of the cases most of the symptoms given under Symptomatology are present, and when these occur a diagnosis is comparatively easy. In cases in which the sinus is operated on at the time the mastoid operation is done, and there are no previous symptoms as a guide, the diagnosis is based largely on physical signs; the dura is lusterless, thicker than usual and of a grayish or yellowish color, with frequently an adherent plastic exudate. The dura itself looks flat; does not present an oval appearance; is easily compressible, and does not fill quickly when pressure is removed. The mere presence of an epidural and a perisinus abscess is by no means an indication for exploring this channel, and the same is true if the sinus wall is covered with granulations, for this is nature's effort to protect the structures beneath. Bacteriologic examinations of the discharge from the ear are of value, as certain forms of infection are prone to greater activity and involve adjacent blood currents more rapidly than others. A further aid in diagnosis is the differential blood count, of which the important part to us is the polynuclear percentage, which, if it be 80 or over, is indicative of pus-absorption, while the leucocyte count merely gives information as to the patient's resistance to the disease. A still further aid can be obtained from the blood by cultures; the knowledge thus gained is very valuable, and at the same time positive evidence can be gained of the nature of the blood constituents. These blood cultures will, I believe, supplant in real value all other forms of examination as an aid in diagnosis.

In atypical cases the diagnosis is also made from the temperature changes, the patient's condition and the physical signs presenting. These cases develop several days after the mastoid has been operated on, and can best be described by briefly outlining a case during its development and course. Take a postoperative case following its usual course for several days, when anywhere from the fourth to the 10th day the patient is restless, his appetite poor, his tongue slightly coated, his pulse 90 to 100, his temperature 99.6 to 100.6 F. The next day the temperature is from one to two degrees higher, with no marked remissions; restlessness is more pronounced; the patient is irritable, and has anorexia; his tongue is dry at the edges, and the coating more pronounced than on the previous day; the pulse is 110 to 120 per minute; and the patient has general headache, and nausea, and is unable to sleep quietly. The day following, the temperature is 104 or higher, and the

pulse 120 or 140 per minute, showing less tension. The headache is more pronounced, and the restlessness, irritability and sleeplessness are distinct symptoms. The tongue becomes brown and dry and has a glazed center. If allowed to progress for another day the temperature is 105 F or higher, pulse 140 to 150 per minute and weaker. The patient is drowsy and apathetic; as the infection progresses the temperature is practically stationary. The pulse becomes weaker, and the evidences of a general pyemia are present. A physical sign which is of distinct value from a diagnostic standpoint is the condition of the inner table covering the thrombotic area. Instead of being white and of a normal color as when the mastoid was operated on, it will be found dark. This is a distinct evidence of disease beneath, the change in color being due to an obstructed venous circulation throughout the bone at this point. If the sinus was exposed at the time of the primary operation, the dura covering it will be found to have undergone a marked pathologic change. It now presents a grayish or yellowish appearance, is flat and covered with fibrinous exudate.

### PRIMARY BULB

*Diagnosis.*—Here the diagnosis is made from the rapid temperature changes closely following an acute purulent involvement of the middle ear. The blood examinations are additional aids, and all other diseases should be ruled out by a process of elimination.

*Treatment.*—The time allotted me forbids any extensive description of technic so I shall speak only of the most important points, omitting all minor details. First, a complete and thorough exposure of the sinus from a point above the knee down to just above the bulb is essential. The treatment of the first and second class differs but little. Too much bone should not be removed posteriorly so as to expose a large dural area over the cerebellum, as a hernia is liable to occur in this region if this be done. The dura forming the anterior wall of the sinus should be incised freely, first with a scalpel to make an opening of sufficient size to allow of the introduction of a blunt pair of scissors. On exposure of the clot it should be removed; if no hemorrhage be obtained from the proximal end of the sinus, a further exposure toward the torcular should be made, and this should be continued until a free hemorrhage is established and it is certain that all infective material in this region has been removed. When this is accomplished the blood should be allowed to flow for a second or two so as to wash out any clot or septic material that may be present further back in the vessel. The blood flow is then controlled by placing a piece of gauze firmly against the opening in the sinus. The lower portion of the sinus is treated in the same manner. If there is a free hemorrhage below, and the clot shows no evidence of having broken down, and pus is absent, the operation can be ended here and gauze packed into the lumen of the sinus. But if, on exposing the interior of the sinus, pus or a broken-down or disintegrated clot be found, or the operator is unable by gentle manipulation to restore the return circulation in the bulb region, he should without delay—and before any attempt has been made to remove the septic material in the sinus—expose, ligate and resect the internal jugular vein from the clavicle to its exit from the skull, together with any of its tributaries that are found involved, as well as infected glands along its course, and then proceed to evacuate the contents of the sinus above. In cases in which operation is done before marked systemic symptoms have developed, and before the coats of the vein below have become infected with the micro-organism of the disease, and where a return flow of blood in the bulb region is not obtained, it is not always wise to remove the vein at this time, for experience teaches that a certain number of these patients recover without further operative procedure. Should they, however, show evidence that a septic process is still continuing, the vein should be removed without delay, provided that the patient's condition will admit of it. In cases in which a return flow of blood has been established at the bulb, one is never sure from what source the current has its origin—whether from the internal jugular vein, or from the inferior petrosal sinus, or both. In a number of cases in which the vein has been removed as a primary step in the operation, before the sinus has been exposed above, we find on opening the sinus that the return flow of blood from the bulb region is quite as free as we would expect if we had the internal jugular vein intact and performing its usual function, the blood coming no doubt from the inferior petrosal sinus. I have seen this demonstrated several times when the internal jugular vein was ligated and resected as a preliminary to exploring the sinus above.

### THROMBOSIS OF THE INTERNAL JUGULAR VEIN

*Cause.*—In otitic disease this thrombosis is always secondary to bulb or sinus involvement.

*Symptomatology.*—Occurring as it does secondary to sinus involvement, thrombosis of the internal jugular vein usually presents the symptoms associated with this condition. In a number of cases there is also pain referred along the course of the vein in the neck and radiating down over the chest of the affected side.

*Physical Signs.*—In some cases there is marked tenderness on pressure along the course of the vein and for some distance anterior and posterior to it, with perceptible fulness and swelling of the neck. In a few cases a hard cordlike mass can be felt, which, however, I have seen only once, and that was in a case of long-standing disease of the vein, with marked hypertrophy of the muscular coat.

*Diagnosis.*—This is usually made from the symptoms associated with disease of the sinus or bulb above and the physical signs, together with blood examinations and culture.

*Treatment.*—This consists of ligation, excision and removal, with any tributaries, and infected glands. The treatment of the resultant wound is optional either by the open method or suturing at the time of operation and inserting a large cigarette drain. I prefer the latter method, with moist saline dressings changed every twenty-four hours.

### PRIMARY THROMBOSIS OF BULB

As nearly all these cases occur in young children, and are produced by a primary infection of the blood current, the patients should be operated on early. When this is done the percentage of recoveries is in favor of removing the clot without ligating the vein, as they do not bear prolonged operations well. Later, if it becomes necessary to resect the vein, it can be done at a second sitting, without the added risk of a long operation. Not infrequently in this disease an exception must be taken to this conservative plan of treatment when, on opening the sinus, pus or a broken-down clot is found. When this condition confronts the operator, whether there be a free hemorrhage at the bulb or not, I believe that it is imperative for the safety of the patient that the vein

be removed at once. Occasionally, a case of postoperative mastoid exhibiting all the typical signs of a sinus infection, is met. When, however, the sinus is explored, no clot or foci can be demonstrated; but as soon as the sinus is opened and a free hemorrhage occurs, the patient improves and recovery follows. I believe the explanation of this to be that there is a small parietal or central thrombus present, and the sudden gush of blood outward when the sinus is opened carries the clot with it, thereby relieving the vessel of any further infection. Before leaving this subject I wish to make a plea for early operation in these cases of infected sinus disease. Experience has taught me that the so-called elective time is during the temperature remissions, as the patients bear the shock of the operation better and react more favorably than if it is done when the temperature is at its height.

### BRAIN ABSCESS

*Cause.*—When we are confronted with the fact that about 37 per cent. of all cases of brain abscesses are the result of an extension of an infective process from the middle ear, it is not difficult to understand how important it is to treat this local condition in order that adjacent structures may not become involved.

This otitic complication is very often difficult of recognition, because of the number of symptoms that may be present, some of which may be due to other intracranial conditions. For this reason a positive diagnosis prior to operation is impossible in many cases.

*Symptoms.*—In abscess of the middle and anterior fossa, the symptoms present in cases seen by me are as follows: A purulent discharge or the history of such, from the ear of the affected side; persistent and localized pain over the suspected area; tenderness on percussion; fretfulness; irritability; moaning, gritting of teeth and crying out in sleep; nausea and vomiting; insomnia at first, later drowsiness; photophobia; aphasia; depending on the location of the abscess; and vertigo in the majority of cases. Intraocular changes, when present, are valuable aids, but not positive. Nerve manifestations are of but little value in the majority of cases. The pulse, in cases uncomplicated by other intracranial affections, is slow, from 45 to 65; when complicated, it is much higher. The temperature ranges from subnormal to a little over 100; if coincident with other lesions it is much higher.

*Diagnosis.*—The diagnosis is made from several or all of the symptoms given. A differential blood count is of aid, and if the abscess be of the acute type, before a limiting membrane has had sufficient time to become organized, the absorption will be greater, and with this there will be a higher polynuclear percentage, ranging from 85 per cent. to 95 per cent. If the abscess be of the chronic variety, from an old middle-ear infection and of long standing, the percentage will be much lower, because of the small amount of systemic absorption taking place, and because the abscess walls are formed by a more or less dense and limiting membrane. A radiograph of the cranial contents may be of aid; in one case it has been of value to me.

### CEREBELLAR ABSCESS

*Cause.*—A collection of pus in the cerebellum may remain unrecognized for years, and if the accumulation be small in amount, with well-defined walls, give but little trouble; but if situated deeply, the lack of coordination on the part of the patient leads us to suspect a lesion of the posterior fossa. An abscess of recent origin may present many of the same symptoms as when located in other parts of the brain.

*Treatment.*—When the various regions of the brain are being explored for an abscess, the skull should be entered at a point corresponding as nearly as possible to the floor of the lobe about to be exposed, in order that free drainage may be obtained. There should be a sufficient opening of both the bone and the dura to enable the operator to examine the region in every direction. Many times the otologist is at fault here and subject to just criticism from the general surgeon, because he makes too small an opening in the skull, and produces more injury to the dura and cerebral substance than he would if he had a larger space to work in. After incision of the dura in a horizontal plane, it has been my custom to introduce silk sutures through the flaps, as in this way they can be used as retractors to draw the edges apart, while they do not injure the dura; should exploration prove negative, they can then be used to close the opening. In exploring the cerebral substance for a pus collection, experience has led me to rely on the use of a long narrow scalpel, and if pus be encountered, to withdraw the knife and introduce into the opening a pair of closed forceps, enlarging the opening by separating the handles. The cavity may be cleaned by one or two methods, depending on whether one is dealing with a pus accumulation of a recent or remote origin. If the abscess be of the acute type, without the presence of an organized tissue wall, the less manipulation used the better. It can be cleansed by gentle mopping with strips of sterile gauze, and drained by placing a small wick of sterile gauze down to the bottom of the cavity, allowing the brain substance to collapse around it; for it is a clinical fact that brain abscesses of the acute form discharge but little after evacuation and do not need firm packing. If the abscess be a chronic one, and if, in addition to the pus there be broken-down and disintegrated brain substance, it can best be removed by irrigation with a warm normal saline solution. The cavity should be mopped out with sterile gauze. In this type of abscess I have been accustomed to use for drainage purposes, a moistened wick of gauze rolled in equal parts of boric acid and iodoform; packing the whole abscess cavity quite firmly so as to promote repair; for with its limiting membrane or connective tissue wall, it does not collapse around a wick as does the acute type of abscess. A serviceable drain also in this latter type of cases, is decalcified turkey-bone. Before inserting the drain in any of these abscess cavities, the utmost care should be exercised in searching for multiple abscesses, as they occur frequently and are often overlooked, to be found at a subsequent operation or on autopsy.

### MENINGITIS SEROSA, OR SEROUS MENINGITIS

*Cause.*—This form of meningitis occurs not infrequently, as a complication of extensive mastoid or sinus involvement.

*Symptoms.*—Aside from the symptoms of the primary disease the one most prominent is pain referred to the basillar region, vertex of the skull and the cervical region of the spine. There is marked stiffness and rigidity of the muscles of the neck, and exquisite tenderness on pressure over the muscles, caused in all probability by the inflammatory process extending along the sheath of the spinal nerves from their exit at the skull. In a fair proportion of cases a chill is present. In well-developed cases the muscular tissue itself is swollen and tender to the touch. The temperature ranges from 99 F. to 103

F., always higher at night than in the morning. The pulse rate is from 85 to 120. The respirations are unchanged at first, but later when pressure is pronounced they increase to 30 and 40 per minute. There is well-marked restlessness, moaning and irritability and hypersensitiveness during the early stage. Later this is succeeded by drowsiness; delirium occurs when the disease is well developed, and nausea and vomiting are present to a marked degree—depending on the amount of pressure exerted by the fluid.

Among the eye symptoms is congestion of disc. Photophobia is always present and nystagmus is frequent. A few patients exhibit difficulty in swallowing. The reflexes remain unchanged except in cases well advanced in the disease.

*Diagnosis.*—The diagnosis is made from the symptoms enumerated. An additional aid is lumbar puncture. When this is done the spinal fluid passes out through the trocar with distinct evidence of pressure and examinations and cultures of it demonstrate whether the case belongs to a serous or purulent type of the disease. If the fluid is clear and free from micro-organisms, then it is only the serous form. Differential blood count is of value.

*Treatment.*—Ice should be applied continuously to the head and neck; there should be free purgation; as little of sedatives as possible should be given to allay pain; the surroundings should be absolutely quiet; feedings should be frequent. Lumbar puncture is, I believe, of distinct therapeutic value, and large quantities of fluid can be drawn off with most beneficial results. This procedure can be repeated several times should it become necessary. In nearly every case the acute symptoms subside following the withdrawal of the fluid. Under this treatment a majority of the patients usually recover.

### PURULENT LEPTOMENINGITIS

*Cause.*—This form of meningeal involvement is frequently encountered as a direct extension from the middle ear through the tegmen tympani, from the mastoid, sinus, pachymeningitis, encephalitis and brain abscess.

*Symptoms.*—Many of the symptoms as exhibited in the serous type of meningitis are present during the early stage. With these we have the presence or history of an otorrhea. The restlessness, irritability and general discomfort are more pronounced. Vomiting is more or less constant, and is independent of the taking of liquids or food. Vertigo is nearly always present. Pain is severe and constant, referred at first to the frontal region or vertex; later along the cervical portion of the spinal column and radiating outward to the muscles. There is well-marked tenderness on pressure in the posterior cervical triangle, and the soft tissue is at times swollen. Temperature is uniformly high, from 103.5 to 105.5, with no marked variations except in cases complicated by other lesions. Rigors precede the temperature rise, and occur from time to time during the course of the disease. There is marked muscular prostration with areas of anesthesia of various portions of the body. Reflexes are but slight, and later absent. Thirst is intense. A number of patients exhibit herpes of the lips, with a rash over the chin, neck and chest. Evesight is defective in the majority of cases. Photophobia is marked; later nystagmus occurs. Examination of the eyes shows discs hyperemic, with a beginning distention of the veins; later a well-marked optic neuritis is seen. The respirations are but little increased at first; later they become rapid, loud and stertorous; then slower and intermittent. There is complete absence of cerebration and death in coma.

*Diagnosis.*—This is made from the symptoms present aided by lumbar puncture, and here the fluid drawn is turbid, flaky, and contains large numbers of diplococci or meningococci.

*Treatment.*—Nearly all these cases terminate fatally. The application of ice locally seems to make the patient more comfortable. Lumbar puncture relieves, for a time, the pressure symptoms. The rational treatment would seem to be to expose and drain the infected area, and this should be done early, before a general infection of the meningeal structures has taken place, if any measure of success is to be obtained. I have had only one successful case, and here the drainage was done early at the time of the mastoid operation. It is interesting to note in this connection, the communication and suggestion advanced by Dr. Cushing, namely, that if repeated doses of urotropin be given to a patient suffering from purulent meningitis, the micro-organisms are rendered sterile. If this be proved, it would be an easy matter to introduce a solution of this drug through the trocar into the spinal canal, after drawing off the amount of fluid desired, and before the trocar has been withdrawn. I believe, however, that the future successful treatment lies in an early operation.

### ENCEPHALITIS

*Cause.*—I shall speak only of that form of encephalitis which the otologist meets following the infection of one or more of the sinuses, or after evacuation of a pus collection in the brain—the latter being the more frequent of the two. In this connection its causation is by an extension of the infection from the sinus or abscess cavity through the veins or lymphatics to the cerebral or cerebellar substance itself.

*Symptoms.*—Occurring as encephalitis does after an operation in this region, the first evidence is given by rigors with vomiting, and closely following this is a sharp and sudden rise of temperature from near the normal point to 104 or 105 or even 106 F., with a correspondingly rapid pulse rate. Pain is severe, and referred to the exact region of the infection. Later, all the symptoms referable to well-advanced cases of brain abscess may be present.

*Diagnosis.*—Inspection of the wound is usually sufficient, as here will be found necrotic and broken-down tissue. At first it is odorless, but later when pus forms the odor is pronounced.

*Treatment.*—The protruding mass should be incised with the scissors; an effort should be made to remove all the disintegrated area; and the cavity should be cauterized and filled with powdered boric acid. The tissue is prone to bulge, owing to a further disintegration, and quantities of it have to be removed at each dressing. Drainage seems of but little use in this connection, as the quantity of the bulging mass forces the drain out. A few patients recover with this treatment, but the prognosis in the majority is bad.

### SUBDURAL ABSCESS

*Cause and Site.*—The two usual sites for the occurrence of subdural abscess are beneath the dura, corresponding to the tegmen antri and the tegmen tympani. In the former locality it is caused by an extension of an infective process from the mastoid antrum, through the superior portion of the inner plate. In the second situation it occurs from an infective middle-ear process

through the tegmen tympani. In either case there is a localized pachymeningitis at the point of perforation, and later a localized accumulation of pus beneath the dura, between it and the brain substance covered by the pia mater. If discovered and evacuated early, it does no harm to the brain tissue, except by pressure while *in situ*.

*Symptoms.*—These are much the same as in a well-developed pachymeningitis or an extensive epidural abscess. If the pus accumulation be large, additional evidence of localized intracranial pressure is exhibited.

*Diagnosis.*—This is seldom made prior to operation. The dura, on exposure at one of the points mentioned, will be found thickened, darker in color and bulging into the opening.

*Treatment.*—Incision of the dura evacuation of the pus and drainage is all that is required. Nearly all the cases recover if operated on early, before complications occur.

### THROMBOSIS OF THE PETROSAL SINUS

*Cause.*—This usually occurs by an extension of a thrombotic area from some portion of the sigmoid sinus or jugular bulb. The inferior petrosal is the one found involved most frequently, and its source of infection is from the jugular bulb into which it empties anteriorly. The superior petrosal receives its infection from the descending limb of the sigmoid sinus a short distance below the bend or knee. Either one or both of these blood channels conveys the infection to the cavernous sinus, from which they carry the blood direct to the sigmoid and bulb.

*Symptoms.*—These are very similar to those found in the phlebitis of the sigmoid and jugular bulb.

*Diagnosis.*—This can only be made a certainty by exploration after operation on the sigmoid, bulb and vein, for here, if the evidence of pyemic infection persists as shown by the symptoms, the presumption is that one or both of these channels is involved. I believe that they are infected far more frequently than is supposed, for many cases show no abatement of the symptoms after obliteration of sinus and bulb and removal of vein. This continuance of symptoms is, I believe, due to an infective process in these sinuses.

*Treatment.*—The only rational treatment is a free exposure of the thrombotic area; evacuation of the sinus contents and packing, so as to obliterate the blood current. It is my belief that many times when a complete operation has been done on the sigmoid bulb and vein, an encephalitis of the cerebellum subsequently develops as the result of an infective process left in these sinuses.

### THROMBOSIS OF THE CAVERNOUS SINUS

*Cause.*—This is seldom, if ever, primary, and very frequently is bilateral, owing to an extension through the circular sinus.

*Symptoms.*—Occurring as this thrombosis does secondary to thrombosis in other blood currents, we may have many or all of the symptoms that are present in these cases. Pain is always pronounced. The condition is one accompanied by basilar meningitis and when present is associated with the symptoms produced by this lesion, besides the others.

*Physical Signs.*—These are edema of eyelids and root of nose and face on affected side, ptosis and strabismus. Vision is defective; exophthalmos, retinal hemorrhages and choked disc are present. Pharyngeal swelling, as well as that of the tonsils and larynx, is frequently seen.

*Diagnosis.*—This is made from the symptoms and physical signs presenting.

*Treatment.*—I do not know of any treatment that is successful.

A few cases have been reported as recovering with complete loss of vision. Day[1] reports such a case. The duration of the disease is usually a few days; occasionally a case may go on for weeks or months.

I have purposely omitted thrombosis of the vertebral, mastoid, anterior and posterior condyloid veins, as well as the marginal sinus, as they seldom, if ever, occur primarily, save possibly thrombosis of the mastoid vein; and when a primary infection of this does occur, the symptoms resulting from it are immediately overshadowed by those quickly produced from infection of the sigmoid.

I urge most strongly the importance of teaching the undergraduate in our medical colleges more about aural disease, and particularly the gravity of a running ear, so that when this class of case presents itself to him for advice and treatment, appropriate measures may be instituted for its relief. It is mainly in this way that we may hope in the future to diminish and limit the intracranial complications of otitic disease.

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## INTRACRANIAL LESIONS CONSECUTIVE TO NASAL AND ACCESSORY SINUS INFECTIONS *

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My friend, Dr. John McCoy, and I have made a search of the literature and find that but few rhinologists have had any experience with intracranial complications. No rhinologist has reported anywhere near the number of cases depending on nasal infections as compared with the number met in an otologic practice. It is only within the past few years, during the development of the modern radical surgery of diseases of the accessory sinuses, that the cranial complications have at all come to the notice of the rhinologist. Previous to this time such intracranial lesions as were diagnosed fell into the hands of the general surgeon for operative treatment.

That infection occasionally extends from the nares to the cranial contents is sadly brought to our notice. That these complications occur as frequently as they do in connection with suppurative lesions of the tympanum, mastoid and internal ear, present information would seem to deny. A vertical anteroposterior section of the head just to the left of the median line shows the wide area of the cranium exposed to possible infections as a result of suppurative inflammation of the frontal, ethmoid and sphenoid sinuses. The antra nowhere come in direct connection with the floor of the cranium, yet it is possible for an infection in the antrum to reach the cranial contents indirectly through either the orbit or the ethmoid.

The frontal sinus may be absent, or it may extend in a vertical direction three inches above the orbital arch. Again, there may be a horizontal prolongation partially or completely over the roof of the orbit, so that in the latter case a very large part of the floor of the anterior

1. Trans. Am. Laryngol. Rhinol and Otol. Soc., 1906.

* Read in the Joint Meeting of the Section on Surgery and Anatomy and the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

fossa of the cranium may be exposed to infection extending from a diseased frontal sinus. Let me call attention to the close juxtaposition along the floor of the cranium of the two areas occupied, respectively, by the right and left ethmoidal and sphenoidal sinuses. The importance of this can be appreciated only by the surgeon at the bedside, who, having reason to suspect an intracranial lesion in cases of bilateral sinusitis, is called on to decide through which side the infection entered.

Infections of the nares may extend into and involve the cranial structures in three ways:

1. Through the blood vessels.
2. Through the lymphatics.
3. By necrosis and perforation of the bony walls of the frontal, ethmoid or sphenoid sinuses.

1. While the bulk of the venous blood from the nose and accessory sinuses returns to the heart through the external veins, there is a small amount that reaches the superior longitudinal sinus through the foramen cecum, thus making it possible for infective sinus thrombosis or general infection of the system to occur.

2. The general lymphatic drainage follows the same course as the venous. The perineural lymph spaces around the branches of the olfactory nerve are so arranged that it is easier to understand how infective meningitis may arise by infection along this route. Evidence is yearly increasing that leads investigators to believe that the micro-organisms inducing meningitis gain access to the cranial cavity in the large majority of cases through the ear, nares or nasopharynx. The exact paths, however, by which they traverse the latter two regions remain still to be determined.

3. Necrosis of the walls of the sinuses and direct infection of the dura. In discussing this subject I shall consider the frontal, ethmoid and sphenoid sinuses individually.

### FRONTAL SINUS

It has fallen to my lot to see a great many cases of frontal sinusitis, both acute and chronic. Having operated in more than two hundred cases in such a way that every part of the cavity was explored, I have records of but three cases in which there was a necrosis of the posterior wall. In two of them there was a history of syphilis, and from the extensive destruction of bone I can not help thinking that it was a very important factor. In the third case there had been a previous operation at which also I am told there was a small perforation of the posterior wall. In most of the cases of chronic frontal sinusitis which I have seen no matter how extensive the change in the mucosa, the bone had been only slightly altered from the normal. Occasionally I have observed an ostitis of a proliferative type resulting in the thickening of the bone in ridges.

Necrosis with perforation of the inferior or orbital wall of the frontal sinus is quite common. It is most commonly associated with obstruction to the adequate drainage of pus through the nasofrontal canal. The perforation is more frequently nearer the nasal than the temporal portion of the upper lid. Structurally, portions of the inferior wall of the frontal sinus are thinner than the posterior and give way to the pressure. In cysts of the frontal sinus there may be extensive pressure and absorption of the wall. A few non-syphilitic cases have been reported in which the posterior wall of the frontal sinus has been perforated and, as complications, epidural abscesses, meningitis and brain abscesses have been found.

### ETHMOID CELLS

There are three pathologic processes found in the ethmoid cells: suppuration, polyp-formation and cysts. In suppuration, when drainage through the normal openings into the nasal cavities is obstructed, necrosis and rupture may occur either through the superior wall, that is, the cribriform plate of the ethmoid, into the anterior fossa of the cranium or through the external or orbital wall into the cavity of the orbit. As a result of rupture into the cranial cavity, three processes have been observed: meningitis, epidural abscess and abscess of the brain. As a result of infection of the orbital contents there occurs an orbital cellulitis characterized by a marked edema of the upper and lower lids with exophthalmos. Secondary to the orbital cellulitis, and even possibly primary in the case of the rupture of the posterior ethmoid cells, thrombosis of the orbital veins may occur, which, traveling backward, involves the cavernous sinus on the same side. Involvement of the cavernous sinus is invariably associated with marked exophthalmos and edema of the lids. Owing to the communication of the cavernous sinus on one side with that of the opposite side through the circular sinus, it occasionally happens that a sinus thrombosis arising from infection of one orbit and cavernous sinus extends through the circular sinus to the opposite cavernous sinus resulting in exophthalmos of the opposite eye.

### POLYP-FORMATION

Polyp-formation within the ethmoid cells causes extreme distention of the cells, rupture of the bony walls and occasionally results in absorption of the superior wall or orbital wall of the ethmoid. As polyp-formation is usually accompanied by suppuration in these cells, the subsequent history of such perforation either into the cranial cavity or orbit as a result of a new and added infection to that which is already present produces the same pathologic conditions as described above in suppuration. Cystic formation within the ethmoid cells results in varying amounts of distention of the cells with absorption by pressure of the bony walls in various directions, upward through the cribriform plate or externally toward the orbit. As the contents of these cysts are usually sterile, the symptoms depend entirely on pressure and displacements produced by the mass. It is quite common for these cysts to absorb the lacrimal bone and displace the contents of the orbit. In such cases a tumor may be seen and felt near or slightly above the inner canthus of the eye, displacing the globe externally and often downward. If the cyst projects through the posterior ethmoid cells into the rear of the orbit, protrusion of the eye or exophthalmos may result. There is seldom in cystic disease any edema of the eyelids as in the acute inflammatory cases. The cyst may become infected, rupture and then suddenly the symptoms that were enumerated in acute suppuration may supervene.

### SPHENOID SINUS

Two processes are found in this cavity, namely, suppuration and polyp-formation. As portions of the superior and outer wall of the sphenoid cavity are normally very thin usually, one can readily understand how obstruction to the outlet of a purulent secretion may cause rupture of the superior or outer wall. The conditions resulting from this rupture are meningitis, epidural abscess, brain abscess, sinus thrombosis, impairment of vision, even blindness and exophthalmos. The cavernous sinus passes along the lateral wall of the

sphenoid sinus and is the one usually to be involved in cases of sinus thrombosis. When the circular sinus is involved the clot usually extends quickly into the cavernous sinus, and both the right and left cavernous sinuses are secondarily involved. The relation of the sphenoid sinus to the orbit makes it possible for an orbital cellulitis to develop in connection with suppuration of the sphenoid sinus, giving rise to the same conditions as described in connection with the ethmoid cells. Of the three sinuses, the frontal, ethmoid and sphenoid, it has been my experience that intracranial complications are far more apt to result from disease of the ethmoid and sphenoid than of the frontal.

That the rhinologist is not entirely at fault in not being able to determine the source of infection in many cases with the present methods of examination is perfectly true. In the first place, the anterior fossa of the cranium and the cranial contents found therein are those first involved when the nares are the source of infection. In the cases of infection from the ear the cranial contents in the middle and posterior fossa are first involved. It is well known that far more severe and extensive lesions may be present in the anterior fossa without giving rise to sufficient symptoms to enable the physician to make a diagnosis than in the middle and posterior fossa of the cranium. The rhinologist again meets difficulties in his examination of the nose far greater than does the otologist in the aural examination.

Nearly every patient ignores a moderate amount of discharge from the nares, considering it a type of catarrh which is common to every one. Consequently inflammatory lesions of the accessory sinuses, accompanied by a moderate discharge but unaccompanied by pain, are frequently unheeded by the patient. On the other hand, a discharge from the auditory canal is cause for concern and the seeking of relief. Nasal examination of a patient in whom intracranial lesions are suspected is frequently most unsatisfactory to the examiner and the family physician. For example, a patient in whom there are symptoms of meningitis in the early stages seeks an opinion as to whether the infection originated in the nasal cavities. Should the disease have extended through the veins or lymphatics it is scarcely likely that the nasal examination will detect the fact. If there is no sign of any secretion either in the nose or nasopharynx, one may never be sure that the sinuses are not involved. It is not at all uncommon to have the secretion from the ethmoid and sphenoid sinuses retained and only periodically discharged into the nares or nasopharynx. Without the evidence of secretion or any undue bulging of any group of cells, suppuration may be present without being detected by nasal examination. There are many factors which make it difficult to make a thorough nasal examination, such as the presence of a badly deflected septum, polypi, etc., which render a satisfactory examination unusually difficult. If, on the other hand, pus be seen in both nasal cavities, it is extremely difficult at a single examination to determine the extent of the involvement of the frontal, ethmoid and sphenoid cavities. It is still more difficult to determine in bilateral cases whether the infection has extended to the cranial contents from the cells, blood vessels or lymphatics of the right or left side. Since the cells meet so nearly in the median line and the physician is without the aid of a focal symptom as in one ear, little if any help is to be derived from a consideration of the subjective symptoms of the patient. Likewise, when but one side of the nasal chamber is involved in the suppurative process, great difficulty is experienced to determine whether the infection of the cranial contents arose from the frontal, ethmoid or sphenoid sinuses. With such difficulties, then, before the rhinologist, there should be no surprise that greater progress has not been made by him up to the present time.

The intracranial complications consecutive to nasal infection are meningitis, epidural abscess, sinus thrombosis and brain abscess.

### MENINGITIS

It is unnnecessary to enter into the details of the varieties and symptoms of meningitis. I shall merely remark that there is an acute type, not only involving the brain, but extending to the spinal cord, which is nearly always fatal. These cases are such as are most frequently seen by men devoting themselves to internal medicine. The source of infection is rarely if ever discovered. I have frequently been called in to decide whether the infection reached the meninges through the nares. Finding the patient in a mild delirium, the difficulties attending a thorough examination of the nares and accessory sinuses were much enhanced and my nasal examination has in nearly all cases been most unsatisfactory to me. I have never felt that I could conscientiously advise an operation in these acute cases, and death has usually occurred within two or three days.

There is another type of meningitis commonly described as serous meningitis in which the symptoms are less acute. In such cases, if disease of the accessory sinuses has been discovered and no other source of infection can be found I believe that we are justified in advising operative interference with the object of removing further infection, just as is done in cases of otitic meningitis.

A third class of meningitis, a more chronic or leptomeningitis, includes cases in which undoubted sinus disease has existed for some time. When all other source of infection has been excluded, I would again advise operation on the same ground as in the case of serous meningitis.

### EPIDURAL ABSCESS

An epidural abscess is usually discovered at the time of operation for chronic sinusitis. It gives rise to vague symptoms which are frequently associated with sinus disease independent of epidural abscess. Headache is perhaps the most common symptom associated with this condition, but headache is so frequent in some of the severe types of sinus disease that from it alone we can not make a diagnosis of epidural abscess. In one patient on whom I operated there was a perforation, about 2 cm. in diameter, of the posterior wall of the right frontal sinus with a mass of granulations and pus between the posterior table and dura. The headache in this patient was so severe and at times the mentality was so confused that I told the surgeon and the family physician with whom I saw the case that I suspected an abscess of the brain. The patient was under observation for a period of about ten days before he would consent to operation. During the twenty-four hours before I operated the patient had three epileptiform seizures, one occurring during the night. There was no history of any such attacks previously. The patient was immediately sent to the hospital when the epidural abscess as above described was found, evacuated, and the patient made an excellent recovery.

### SINUS THROMBOSIS

Thrombosis of the cavernous and circular sinuses gives rise to marked eye symptoms, such as edema of the lids and exophthalmos. These cases are more frequently referred to the ophthalmologist than to the rhinologist and surgeon.

### BRAIN ABSCESS

The symptoms which lead one to suspect an abscess of the frontal lobe of the brain are persistent headache, slight elevation in the temperature, pulse slow, possibly choked disc and a blunted mental activity, as apparent delay in comprehending the questions asked and slow response. I believe that there is a field as yet insufficiently developed, namely, skiagraphy, by which we shall be able to determine abscesses of the brain. I do not pretend to say that every novice in the use of *x*-rays can make a plate which will show an abscess when it exists, but I do believe that, if an opportunity were given to a few of the experts in this line of work to skiagraph patients with brain abscess, the radiographer would soon learn the proper tube and time of exposure so that in many cases brain abscess might be accurately located by this method.

### OPERATION

The operative technic which has been most satisfactory to me in exploring the sinuses has been what is known as the ethmoidal route. Skin incision begins beneath the eyebrow at the supraorbital notch, is carried in a curved direction downward midway between the inner canthus of the eye and the dorsum of the nose, and terminates at the middle portion of the nasal bone. The periosteum is peeled forward and backward, the capsule of the orbit freed from its attachment to the inner wall of the orbit. With chisel, mallet and rongeur forceps the nasal process of the superior maxilla is cut away, opening at once into the anterior group of ethmoid cells. By following this back through the whole of the ethmoid labyrinth and opening and enlarging the sphenoid sinus one traverses and explores very thoroughly the region from which the majority of infections reach the cranial and orbital cavities. The operation is a bloody one and sould be performed only by one who has acquired the ability to reflect light into the cavity so as to see into the depths of the ethmoid and sphenoid regions. By this route one is working parallel with the floor of the cranium and is much less likely to perforate the floor than by the maxillary route which is advocated by some. This exposure enables one to remove the floor of the frontal sinus and by means of probe to explore the frontal sinus, and in that way to determine whether this cavity may be the seat of the trouble. If this is found to be the case, then a horizontal incision through the eyebrow with the elevation of the periosteum over the frontal bone and the removal of the entire anterior wall of the frontal sinus is indicated. As many of these patients are desperately ill, it is exceedingly important that whatever operative procedure is undertaken shall be terminated as quickly as possible. The shock of a short operation is much less than that of a long one. In my opinion, it has been advisable in these cases not to attempt to do the most thorough operation that one does in chronic suppurative sinusitis without cranial complications, but to exenterate all the cells as quickly as possible, introduce iodoform gauze drainage through the opening, and leave the wound open without any attempt at suture. Should the patient recover from his acute symptoms, secondary suturing may be done in the course of a few days with but little more scar than if the wound had been closed at the time of operation.

53 West Fifty-sixth Street.

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[THE DISCUSSION ON THE PAPERS OF DRS. HARTLEY, MCKERNON AND COAKLEY WILL APPEAR NEXT WEEK WITH THE OTHER PAPER IN THE SYMPOSIUM ON CRANIAL TECHNIC, THAT OF DR. CUSHING.]

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## DIPHTHERIA "CARRIERS"

### THEIR DISCOVERY AND CONTROL*

MYER SOLIS-COHEN, A.B., M.D.

PHILADELPHIA

The part played by the sanitarian in the control of contagious diseases is a most difficult one. On the one hand, the public resents any infringement on its personal liberty, and many physicians object, on scientific or other grounds, to whatever restrictive measures are enforced. On the other hand, reliance is placed by both the public and the profession on the precautions adopted by the health authorities, whether sufficient or insufficient, in consequence of which a false sense of security is often imparted.

Of no disease is this truer than of diphtheria. When the sanitary officials have disinfected the premises and removed the placard after recovery from this disease, all danger of infection is believed to be ended. The feeling of safety is the same whether this be done on the attending physician's statement that all clinical evidence of diphtheria has disappeared or only on bacteriologic evidence that the bacilli no longer are present.

That fomites infected by a diphtheria patient may transmit the disease to others all seem to recognize. Terminal disinfection of the sick room and its contents, therefore, is universally employed. Seldom, however, is any effort made to discover and disinfect animate carriers of the contagion. Yet it has been shown repeatedly that Klebs-Löffler bacilli from a diphtheria patient may be deposited on the skin or mucous membrane of persons coming in contact with him, and that throats so infected may retain the organisms for weeks and months.

### PROPORTION OF "CONTACTS" INFECTED

During the past four years I have discovered diphtheria germs on the throats of many healthy persons who had been in contact with persons suffering from clinical diphtheria. These so-called infected "contacts" or diphtheria "carriers" were found in orphanages and homes, in public schools and in private dwellings.

The healthy inmates of several homes for children were examined bacteriologically during nine different outbreaks of diphtheria, as many as 124 being examined on one occasion and as few as two on another. The percentage found infected varied from 50 to none, the average for the nine epidemics being 9.14 per cent. Altogether, 269 individuals were examined, of whom 35 (13 per cent.) harbored the germs. On four occasions children suffering from sore throat were examined, the greatest number tested at one time being eight and the smallest four. The percentage harboring diphtheria

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

bacilli, and in consequence regarded as cases of latent diphtheria, varied from 100 per cent. to 33.3 per cent., the average being 62.5 per cent. Of the 22 examined altogether 12 (55 per cent.) had latent diphtheria.

In eleven private dwellings, where one of the family was sick with diphtheria, the healthy inmates were cultured, from eight to one being tested at a time. The percentage infected was 100 per cent. in three instances and zero in one, the average of the eleven being 57.3 per cent. The total number examined was 40, of which 22 (55 per cent.) were infected. In four of these houses persons with sore throat were similarly investigated, the number in each house not exceeding four and in one instance being as small as one. From 66.6 per cent. to 100 per cent. of cases of latent diphtheria were discovered, the average being 91.6 per cent. Of the 10 examined the report was positive in 9 (90 per cent.).

In a block where several cases of typical and latent diphtheria had occurred, three children who were suffering from sore throat were examined, two (66.6 per cent.) proving to have latent diphtheria.

Twenty-three school children who had been in contact in the class room with a child convalescent from latent diphtheria and with one who subsequently developed the disease, and who themselves exhibited reddened fauces or enlarged tonsils, were examined bacteriologically, but only one (4.3 per cent) was found infected. The details of all these cases may be obtained from the histories appended.

The figures just given correspond fairly well with those of other observers. These latter have recently been compiled by Graham-Smith.[1] According to them 66 per cent. of the members of the family to which the diseased person belonged were infected, the proportion being higher (100 to 50 per cent.) in families in which no precautions were taken to isolate the sick and much lower (10 per cent.) when every precaution was taken. Of the more distant relatives examined, 29 per cent. were found to be infected. Bacilli were found in 37 per cent. of persons in attendance on the sick. Observations on the inmates of hospital wards and institutions showed that 14 per cent. are likely to give positive cultures when diphtheria occurs among them. In infected schools 8.7 per cent. of the scholars were found to be harboring the germs.

### THE INFECTED "CONTACT" A SERIOUS MENACE

An infected "contact" may later develop diphtheria, typical or latent, or he may remain healthy. In either instance he is capable of transmitting virulent bacilli to others, who may then develop clinical diphtheria in a mild or a severe form, or, remaining healthy, may themselves act as diphtheria "carriers." Consequently, the infected "contact" is as great a menace to the public health as is a patient convalescent from diphtheria; for in the one, as in the other, it is the presence on the mucous membrane of diphtheria bacilli that makes them a source of danger. In point of fact, the former is even the more dangerous, for he goes about among healthy people unrestrained, while the convalescent usually is isolated until the bacilli disappear from his throat.

I believe that it is the latent and "carrier" cases that are mostly responsible for the prevalence of diphtheria in cities where the usual precautions are taken in regard to clinical cases that are reported or "notified" to the health authorities. Not until these hitherto unrecognized cases are discovered and removed as sources of contagion will much headway be made in checking the spread or preventing the occurrence of diphtheria.

In a large proportion of diphtheria cases the source of the infection is unknown, the patient never having been in contact with the disease; and yet in every instance there must have been some contact with an animate or inanimate carrier of the Klebs-Löffler bacilli. Is it not fair in these cases to assume that the sick person has been in close proximity in the street car, shop, factory, office, class room or dwelling with an unrecognized case of latent diphtheria or with an infected "contact" or diphtheria "carrier"?

I have tabulated, with a view to ascertaining their possible sources of infection, 268 cases of typical diphtheria and 130 cases of latent diphtheria that I have investigated, most of them in my capacity as assistant medical inspector of the bureau of health.

By typical diphtheria I mean cases with pseudo-membrane. I regard as suffering from latent diphtheria all persons giving positive cultures who exhibit some pathologic condition, local or general, unassociated with pseudo-membrane. Healthy infected persons I term infected "contacts" or diphtheria "carriers." The cultures were examined by the city bacteriological laboratory, which judges the organisms according to morphology alone. It is possible that in some instances what I have called latent diphtheria may have been cases of ordinary tonsillitis in whose throats a non-virulent diphtheria-like organism chanced to be present. It is only fair to state that from ten of these so-called cases of latent diphtheria discovered in school during a diphtheria epidemic pure cultures were isolated and inoculated into guinea-pigs. Only two of the pigs died and in but one were Klebs-Löffler bacilli recovered at autopsy. Considerable time elapsed, however, in many instances between the dates of the first culture and the one that was tested for virulence, seventeen days intervening in one case. It is conceivable that virulent Klebs-Löffler organisms may have been present at first and were replaced later by non-virulent bacilli, as is the usual occurrence in true clinical diphtheria. Still, from the public health standpoint, I feel that these doubts are outweighed in importance by the fact that virulent bacilli remained for twenty days on a boy's throat despite vigorous antiseptic measures and that seven persons with latent diphtheria gave typical diphtheria to others.

TABLE SHOWING POSSIBLE SOURCES OF INFECTION

| | Typical Diphtheria. | | Latent Diphtheria. | |
|---|---|---|---|---|
| | No. Cases. | P.C. | No. Cases. | P.C. |
| Total number of cases investigated | 268 | .. | 130 | .. |
| Case of typical diphtheria in same house | 57 | 21 | 23 | 17.5 |
| Case of latent diphtheria in same house | 8 | 3 | 4 | 3 |
| Infected "contact" diphtheria in same house | 5 | 2 | 1 | 1 |
| Case of sore throat in same house | 12 | 4.5 | 6 | 4.5 |
| Case of typical diphtheria in same school or Sunday school | 29 | 11 | 20 | 15.5 |
| Case of latent diphtheria in same school or Sunday school | 10 | 4 | 56 | 43 |
| Case of typical diphtheria in same factory | 0 | 0 | 1 | 1 |
| Case of typical diphtheria in same street | 3 | 1 | 3 | 2 |
| Case of typical diphtheria in school attended by other members of family | 14 | 5 | 0 | 0 |
| Case of latent diphtheria in school attended by other members of family | 1 | 0.5 | 0 | 0 |
| Case of typical diphtheria in Sunday school attended by other members of family | 2 | 1 | 0 | 0 |
| Inmate of institution with no history of recent known contact | 14 | 5 | 1 | 1 |
| No history elicited of direct or indirect contact as above (exclusive of inmates of institutions) | 113 | 42 | 15 | 11 |

1. "The Bacteriology of Diphtheria." Edited by G. H. F. Nuttall and G. S. Graham-Smith, Cambridge, 1908.

In most of the cases of typical diphtheria where no history of direct or indirect contact was elicited no inquiry was made as to the existence in the house of cases of sore throat. Many attended schools outside of my district (which included about one-fiftieth of the population of Philadelphia). Not being acquainted with conditions in those schools, I did not know whether or not cases of diphtheria had occurred there. Probably more attended infected schools than the figures show. Had cultures been taken of the cases of sore throat existing in the same house with the patient many doubtless would have proved to be instances of unrecognized latent or mild diphtheria.

Patients who attended schools where pupils had recently been stricken with diphtheria did not necessarily contract the disease from those pupils. It is possible that some may have been infected by unrecognized cases of latent diphtheria or by healthy diphtheria "carriers" who were attending school in ignorance of their infectivity and who may themselves have been infected by the first cases that occurred. In like manner, when other members of the family attended schools where diphtheria was prevalent they may have become infected, though remaining healthy, and may thus have brought the germs home to the susceptible children. Enough has been shown, at any rate, to demonstrate how great a factor in the spread of diphtheria is the unrecognized human carrier of contagion.

### DISCOVERY AND CONTROL OF INFECTED "CONTACTS"

The one thing, however, that probably more than any other prevents public health officials from taking action in regard to the infected "contacts" is the knowledge that healthy persons may have in their throats diphtheria-like bacilli indistinguishable, morphologically, from virulent Klebs-Löffler bacilli, but which, nevertheless, are harmless. Many bacteriologists regard these as varieties of or attenuated or modified Klebs-Löffler organisms. Others believe them to be completely distinct from the latter and refer to them as the Hoffman or pseudo-diphtheria bacilli. Whichever view is accepted, the fact remains that non-virulent diphtheria-like bacilli frequently are present on the throats of healthy persons.

Depending on cultural tests alone, such persons, when found in the same house with a diphtheria patient, would naturally be looked on as infected "contacts," and when suffering from sore throat could easily be mistaken for cases of latent diphtheria. It is no wonder, therefore, that health authorities hesitate before applying restrictive measures to those inmates of a diphtheria house whose throats may give positive cultures.

However, as I recently pointed out,[2] the consensus of opinion among bacteriologists and sanitarians is that the diphtheria-like bacilli found in the throats of healthy persons who have not been in contact with cases of diphtheria, typical or latent, or with infected "contacts" are practically always non-virulent. On the other hand, the diphtheria-like bacilli found in persons who have recently been in contact with the disease are usually virulent.

Consequently, public health officials would undoubtedly be justified in demanding that the inmates of an institution, hospital ward or private dwelling which contains a diphtheria patient be examined bacteriologically, and, if found infected, be isolated until the bacilli disappear. But owing to the possibility of the organisms being non-virulent, I think that inoculation tests on guinea-pigs should be made when requested by a healthy infected "contact" or by his physician, and, in the event of the animal surviving, that all restrictions should be removed.

The measures here recommended I have been carrying out whenever possible since September, 1906. While attending a case of diphtheria I invariably take cultures of the throats of all the inmates of the house. In institutions and dwellings that I visit as medical inspector, however, I am permitted to take cultures only when the attending physician requests it. All persons found infected are confined to the house; many are isolated; a few are sent to the hospital.

The beneficial results of such a procedure and the unfortunate consequences of its omission may be seen from the appended histories of epidemics that have occurred at various times in institutions and private families. Institution A, for instance, had experienced prolonged epidemics despite the fact that every recognized case of diphtheria was sent to the hospital and the building disinfected. But when all the children were examined bacteriologically and those found infected isolated, spread of the disease was speedily checked. The reverse occurred in Institution B. On one occasion discovery and isolation of the infected "contacts" had brought an epidemic to an early termination. At a subsequent outbreak, when this was not done, the disease persisted for several months. In both institutions children who had been immunized contracted diphtheria after the effect of the antitoxin had worn off.

Protective doses of antitoxin were always administered to the healthy inmates and unquestionably were an important aid in fighting the epidemics. Their greatest value, in my opinion, lies in protecting the non-infected healthy children from the infected healthy children, and in protecting the latter from themselves. The antitoxin does not influence the bacilli, which still persist in spite of it.

Infected children, despite their immunization, remain dangerous to all unprotected persons with whom they come in contact, and even, as soon as the period of immunity has expired, to those who have received prophylactic injections. In Institution E, infected "contacts" gave typical diphtheria to children admitted to the Home subsequent to the immunization, to a servant who had refused the antitoxin and even to inmates who had been protected two months previously. Hence the necessity of discovering the diphtheria "carriers" and isolating them until bacteriologically clean, in addition to general immunization.

Routine bacteriologic examination of all those living in a house where diphtheria has occurred will sometimes disclose the original source of infection, as happened in house infection C.

When secondary cases arise in a family where one member has had diphtheria the disease is not necessarily communicated by the patient, but may be transmitted by a healthy infected "contact." This is clearly shown in house infection A.

That persons who have never been near a case of clinical diphtheria may contract the disease from a diphtheria "carrier," house infections B and H give ample evidence.

The latter also illustrates how persons become infected in an industrial establishment and remaining healthy themselves may yet give diphtheria to others.

2. Latent Diphtheria a Public Health Problem, THE JOURNAL A. M. A., July 6, 1907, xlix, 30.

Without asserting any relationship between cause and effect, I merely mention the fact that during an epidemic of diphtheria, in the course of which I discovered and isolated many cases of latent diphtheria, there were markedly fewer cases of typical diphtheria in my district than in an adjoining district where such measures were not carried out.

Appended will be found detailed histories of epidemics in institutions and private dwellings with brief accounts of the culturing of healthy contacts.

### CONCLUSIONS

1. Persons coming in contact with a diphtheria patient frequently have virulent Klebs-Löffler bacilli deposited on their mucous membranes.

2. Such infected "contacts" may later develop diphtheria or, remaining healthy, may act as diphtheria "carriers," transmitting the bacilli to others who thereupon may develop the disease or may themselves become diphtheria "carriers."

3. To prevent their becoming a source of danger to others, diphtheria "carriers" should be isolated until bacteriologically clean.

4. Recognition of the infected "contacts" must precede their control. This can be brought about only by taking cultures of the throats of all the inmates of a house where diphtheria exists.

5. Little progress need be expected in the prophylaxis of diphtheria so long as we neglect the animate carriers of the contagion.

### DIPHTHERIA EPIDEMICS IN INSTITUTIONS

In all these institutions, whenever a child presented a suspicious throat it was immediately isolated and as soon as a diagnosis of diphtheria was made it was sent to the hospital. The building was always disinfected on the following day.

*Institution A,* consisting of a large central building, two cottages and an infirmary. Between May 11 and 20, 1904, four cases of diphtheria occurred. On May 26 I examined six children who had tonsillitis, with positive culture results in four (66 per cent.). Two days later, and again in three days, a diphtheria patient was removed to the hospital. Then forty-eight inmates were immunized but no cultures were taken. Two of these subsequently developed diphtheria, one on June 3 and the other on June 25. An assistant caretaker was stricken on Sept. 12, 1904.

The orphanage then remained free of the disease until Oct. 29, 1906, when a case developed and was removed two days later. The other children, 124 in number, all healthy, were examined bacteriologically and thirteen (10.5 per cent.) were found infected. Eleven did not retain the germs long, but one gave positive cultures for two weeks and another for over three weeks despite vigorous antiseptic measures. The infected children were each given 3,000 units of antitoxin and the rest were immunized. No subsequent cases arose.

An epidemic of scarlet fever began shortly afterward, the patients being sent to the municipal hospital for contagious diseases. On January 13 two cases of diphtheria were reported, another on the seventeenth, and two more on the nineteenth. Cultures taken on January 14 of two children who had been in contact with the patients proved negative. On January 20 the whole institution was immunized and cultures were taken of six children who had sore throats, two being found infected. A child who had not been cultured developed latent diphtheria two days later.

On May 24, 1907, three days after a boy had returned from the infirmary where he had been eighteen days with tonsillitis, another boy in the same cottage contracted diphtheria. A culture taken of the one who had had tonsillitis was positive. All the boys in the cottage were immunized. A case developed on June 24 and another on September 1. On each occasion prophylactic doses of antitoxin were administered to all the children in the infected cottage.

*Institution B,* a colored home occupying a converted house. On July 11, 1906, two children developed diphtheria, two more cases occurring on July 14. The other children were neither examined nor immunized.

On Oct. 10, 1906, a child contracted diphtheria. The physician in charge, Dr. John M. Swan, took cultures of all the inmates, 36 in number. Six (20 per cent.) were found to be infected. All of these exhibited enlarged lymph nodes on the posterior pharyngeal wall. All but one had enlarged tonsils and a frequent pulse. Only one showed membrane. None complained of headache.[3] The infected children were isolated and their throats treated antiseptically. The bacilli persisted in some for a long period.

On March 14, 1907, another case of diphtheria developed. A different physician was in charge, who took cultures only of suspicious cases. Of eight persons with sore throat examined at various times three gave positive cultures. One whose culture was then negative subsequently developed another attack of tonsillitis at which time Klebs-Löffler bacilli were found. All the inmates were immunized on April 3. The germs persisted in one of the cases from March 29 to May 20.

On April 10 another case developed that was not bacteriologically clean until June 5. On June 25 a child who had been immunized developed diphtheria and remained infected until June 18. At no time were cultures taken of the healthy children.

*Institution C,* a large children's home, having a large building and a separate isolation building. On Feb. 24, 1906, the son of the superintendent was reported sick with diphtheria, and cultures taken on the same day of three suspicious cases showed two of them to be also suffering with the disease.

Two days later nine children with measles who were in the infirmary where the diphtheria cases were isolated were immunized and examined bacteriologically, and the following day sixty healthy inmates received similar treatment. None of the former and three of the latter gave positive cultures. Three more were examined March 1, one on March 3 and two three days later. All were negative.

The home was then free of the disease until Jan. 23, 1907, when a child developed diphtheria. Five of the most intimate "contacts" were cultured, but only one was found to be infected, although another had dull gray patches on both tonsils. The former was isolated until bacteriologically clean. All the more intimate "contacts" were immunized. No case has occurred since.

*Institution D,* a home for colored crippled children, consisting of two converted dwellings. A nurse developed diphtheria in the fall of 1906, and seven children that showed some abnormality were examined, bacilli being found in three. These were isolated, and all the inmates were immunized. No more cases arose

3. I am indebted to Dr. Swan for these notes.

for nearly two years, a sporadic case occurring in March, 1906.

While at school, Oct. 16, 1906, a child from the home was examined by the medical inspector who was examining the members of her class on account of the prevalence of typical and latent diphtheria among the pupils of that school. Although her throat was only slightly inflamed and received constant treatment, the bacilli persisted for three weeks. On November 4 a child developed fever, vomiting and sore throat, associated with the presence of Klebs-Löffler bacilli, but without membrane formation. The twenty inmates were examined, four being found infected, of whom two had enlarged tonsils.

November 6 a nurse became sick and gave a positive culture, although no membrane was present. She was sent to the hospital and fumigation was ordered. Two weeks later a boy developed typical diphtheria and the following day another infected "contact" was discovered. The home has been free since.

*Institution E,* a children's home utilizing a large mansion. A sporadic case developed in March, 1905. On Oct. 6, 1907, a child took sick, was treated for "croup" without any precautions being ordered and twenty-four hours later diphtheria was diagnosed. On this day another sick child was said to have "stomach trouble" and was allowed to mingle with the other children until the next day, when a diagnosis of diphtheria was made. All the children in the home were immunized by the medical inspector, who, however, gave 3,000 units to one who seemed feverish, with foul breath, reddened fauces and secretion in the tonsillar crypts. The inspector ordered this boy isolated and his physician summoned. The latter's first impression was that the boy had diphtheria, but as all signs rapidly cleared up he decided that the lad merely had been frightened by the injection.

Another child took sick the morning after he was immunized, complaining of headache but showing nothing abnormal in his throat. Fearing diphtheria, the physician had the child isolated, but as all the symptoms disappeared in a day he finally believed that the boy did not have diphtheria. At the medical inspector's request, however, he took cultures of these children. Both were positive and remained so for eleven days, the boys then being sent to the hospital.

On December 6 of the same year a child that had been admitted to the home only five days previously seemed droopy, and four days later exhibited a false membrane. The physician then examined a child who had been in the home but a few weeks and who for four days had been suffering from a "cold" and one who had been immunized two months before and who was not feeling well, although neither complained of sore throat. Both showed evidence of diphtheria. The other children were promptly immunized. Cultures were taken of eight who had slightly reddened throats, four proving positive and being thereupon sent to the hospital. A chambermaid who had refused to be immunized developed diphtheria two weeks later.

*Diphtheria Epidemic in a Block.*—Two children in a family developed diphtheria in July, 1906, one going to the hospital, the other remaining at home. The mother, who nursed the latter, gave a negative culture, but a sister, who was healthy and whose throat was clear, was found on July 27 to be harboring the germs. Two months later a culture was still positive. The yard of this house faces the yards of the houses on the next street.

In one of these houses a boy took sick Sept. 5, 1906, with sore throat. Four days later he was seen by his physician, who diagnosed "abscess in the throat." The child went about the neighborhood. A culture taken on September 15 showed Klebs-Löffler bacilli. The throat was reddened and the tonsils appeared enlarged when palpated externally. The cultures continuing positive, the boy was sent to the hospital.

September 10 his brother was taken with fever, vomiting and diarrhea. The attending physician noticed nothing abnormal in his throat, but thought he detected some pulmonary consolidation, and suspected the existence of typhoid fever. September 15 I was asked to see the patient, and on looking at the throat observed a small, gray, non-typical patch on the right tonsil. The child was very weak. A diagnosis of diphtheria was made and the lad was sent to the hospital, where the diagnosis was confirmed. The culture I took, nevertheless, was negative, but there was a large amount of mucus in the throat at the time.

The mother, who nursed both children, and who herself had a sore throat, gave a negative culture. Another healthy brother was likewise free from germs. A sister had a sore throat from the afternoon of September 16 to the morning of September 17. The mother, who looked at her throat, said it was reddened, but that nothing else was wrong. The girl felt perfectly well, and when I examined her on the evening of September 17 the throat was clear. A culture taken at this time was positive. This girl was working in the kitchen of an apartment house until the report of the culture was received.

September 17 I visited every house on the block and took cultures of all who were suffering or who recently had suffered from sore throat. A little boy living next door to the above mentioned case had been ill with sore throat and gave a positive culture. A boy living two doors away, who had played with the infected children and who had had sore throat, was bacteriologically clean. A child living further down the block, who had played with the infected children and who had a slight sore throat with slightly reddened fauces, was found to be harboring diphtheria bacilli which persisted for over seventeen days. Her mother, who had suffered from pain and stiffness in the side of the neck, was free from germs on September 19.

### DIPHTHERIA IN PRIVATE HOUSES

*House Infection A.*—A child whose mother was a disciple of Dowie died of diphtheria without having received medical attention. After the child's burial the whole house was thoroughly fumigated. Cultures were taken on Dec. 14, 1906, of four children, and on December 18 of the mother and of two elders of the church who had prayed over the child. Only one was positive, that of a sister, R. ,whose tonsils were enlarged and reddened. All the others were healthy. The mother would not permit immunization nor would she allow the infected child to use an antiseptic gargle or spray or to be swabbed. The child was not isolated, although the bacilli persisted until December 25. The throats of all the children were examined visually and bacteriologically at frequent intervals.

On December 18 M.'s culture became positive. E. took sick on December 25. When seen by me on Decem-

ber 28 she had typical diphtheria, a pseudomembrane being present on the left tonsil. The culture taken December 28 was positive. At the request of the father, who was not a Dowieite, and despite the mother's protests, I assumed charge of the case, administering 2,500 units of antitoxin at once, 3,000 the day following and 3,500 the next day. The child was well on January 7, but despite frequent and vigorous swabbing with a strong formaldehyd solution, the bacilli did not disappear until January 20. The child's nurse and the mother, though healthy, gave positive cultures on January 12, but the next two cultures of both were negative. The father's throat contained no bacilli on January 12.

December 18 V.'s throat was still negative, but on December 28 the culture was positive. On this latter date the mother took the three children, R., M. and V., the last two being infected at the time, to the house of friends who were also followers of Dowie. A culture taken of M.'s throat was examined at the Pepper Clinical Laboratory of the University of Pennsylvania and pronounced positive. (All the other cultures were examined by the Bacteriological Laboratory of the Philadelphia Bureau of Health.) While away this child became sick and was sent back home. When examined by me on December 31 she was sick and complained of sore throat, but had no fever. No membrane was visible. I administered 1,500 units of antitoxin. On the next day the temperature was 99.2 F. and plugs of membrane could be seen in the crypts of the left tonsil. The same condition appeared in the opposite tonsil. The temperature remained slightly elevated for several days. On January 7 the child was well and bacteriologically clean. A culture of V. taken by his father at his retreat on January 13 was negative.

*House Infection B.*—A child had developed chronic lymphatic leukemia following an attack of diphtheria in December, 1906, and was being treated in a children's hospital. A case of diphtheria having broken out in the ward where the child lay, all the children there were examined and immunized. A number were found infected, including this case of leukemia. The child was sent home and came under my care on June 1, 1907. Despite antiseptic and hygienic treatment, the bacilli persisted until the child's death on June 17. June 8 the child was given 2,000 units of antitoxin in the hope that it might influence the leukemia, in view of the history.

June 15 the mother's median basilic vein was attached to the child's radial artery by Dr. George M. Dorrance and transfusion attempted. The mother suffered from shock and the evening following the operation had fever and sore throat, associated with the presence of a slight membrane. Antitoxin was immediately administered. A culture taken June 15 was doubtful, but one taken on June 16 proved positive. Cultures taken the following three days were negative. The husband was also examined, being found infected on June 17, but free from germs on June 19.

*House Infection C.*—The families of a brother and a sister lived in the same house. About April 4, 1907, P. C., the father of one family, was taken with sore throat which lasted all week. A day or two afterward his son, J. C., developed sore throat and headache. The latter was put to bed for a day and in four days felt all right. On April 9 a daughter, M. C., was taken sick with membranous croup and two days later was sent to the hospital. On the following day the house was disinfected.

I immunized all who would permit it, and took cultures of their throats. The father, P. C., still complained a little of sore throat. The fauces were reddened and the cervical glands were slightly enlarged. The culture taken April 1 was positive and inasmuch as the cultures continued positive for thirty-eight days, despite faithful antiseptic treatment, the man was sent to the hospital. The boy, J. C., when examined April 12 felt well and his throat was normal, but his cervical glands were markedly enlarged. A culture taken then proved positive, but cultures taken ten and twelve days later were negative.

A. McG., of the other family, although perfectly healthy, gave a positive culture on April 12 and it was not until May 11, one month later, that the first negative culture was obtained. The mother of this girl, C. McG., the brother, B. McG., and the sister, M. McG., gave negative cultures on April 12, as did M. C. and H. C. of the other family. This last child, H. C., subsequently developed a mild attack of diphtheria on May 5, twenty-three days after immunization. Diphtheria bacilli were present in her throat on May 7, and as they still persisted on May 22 the child was sent to the hospital.

*House Infection D.*—About March 17, 1907, H. P. had tonsillitis. Two days later her brother, F. L., had a similar attack. March 26 another brother, L. L., took sick with what was reported to the board of health five days later as suspicions of diphtheria. March 31 the latter's twin, H. L., took sick.

The whole family was examined and immunized on March 31. All of them, the four mentioned above, the mother and another brother, the last two perfectly healthy, were found to be infected. The girl, H. L., kept giving positive cultures up to May 3, a period of thirty-four days. F. L. gave negative cultures after April 12. The twin babies, L. L. and H. L., were sick. L. L. gave positive cultures from March 29 to May 9, a period of six weeks. The last positive culture from H. L. was taken April 12. J. C. gave his first negative culture on April 12. Antiseptic gargles were used by the older children. The babies were swabbed.

*House Infection E.*—In September, 1906, a little girl suffered with diphtheria in the family summer residence in the country, after which the house was disinfected. A month or so after the family had returned to the city the gardener's child, who had remained in the country, was stricken with diphtheria. About March 1, 1907, the baby of the family which had moved to the city was taken ill with diphtheria.

The rest of the children, seven in number, were at once immunized and removed to another house, where they were placed under my care. Two were found to be free of germs on two successive tests. One gave a negative culture on March 4, positive cultures on March 7 and 10 and negative March 13 and 14. Two gave a positive culture at first, followed by two successive negative cultures. Another gave a series of two positives, followed by two negatives. The one who had been sick in the fall was also found to be harboring diphtheria germs which persisted for two weeks.

The infected children were isolated until two successive negative cultures were obtained, meanwhile gargling and being swabbed with antiseptic solutions. The sick child's nurse and his mother, who was con-

stantly with him, were examined March 18 with negative results. Later, however, before the germs had left the sick child's throat, the mother contracted diphtheria. No cases have occurred since.

*House Infection F.*—A boy had a mild attack of diphtheria, unrecognized at first. The whole family was examined bacteriologically, the bacilli being absent in the mother, one brother and one sister. Another brother, although healthy, gave a positive culture and remained infected from November 20 to December 17, 1907. Another sister, whose culture was positive, later went through a typical attack of diphtheria, followed by paralysis of the soft palate. No other case resulted in this group.

*House Infection G.*—A little girl, G. R., was absent from school the week of Nov. 11, 1904, on account of sore throat, but received no medical attention. A child living next door also had sore throat. On November 22 J. R.'s two sisters, F. R. and H. R., developed diphtheria. A brother, P. R., who had left the house on November 24, was taken sick with the disease four days later.

*House Infection H.*—A girl working in a candy factory contracted diphtheria. Shortly afterward the daughter of the forelady of the sick girl was also stricken with the disease. A culture taken of the forelady proved positive. Although the latter was perfectly healthy and gargled assiduously, the next eight cultures were still positive, the daughter having recovered and been free from germs two weeks before the mother was bacteriologically clean.

*House Infection I.*—Sept. 7, 1904, a boy contracted diphtheria. Two sisters were immediately sent from the house, but continued attending school. The throats of both were examined visually and bacteriologically September 19. One was normal in every way. The other had no subjective symptoms, but presented greatly enlarged and reddened tonsils and gave positive cultures for twenty-two days.

*House Infection J.*—The mother and the sister, both healthy, of a diphtheria patient were examined for the Klebs-Löffler bacilli, which were found present in both persons.

*House Infection K.*—Cultures were taken of the mother and two brothers of a diphtheria patient. One brother was infected, the others were not. All were healthy.

### LATENT DIPHTHERIA IN PRIVATE FAMILIES

The healthy brother of a person with latent diphtheria was found to be harboring the germs. Cultures taken of two healthy sisters of a person with latent diphtheria both proved negative.

### SCHOOL CONTACTS

A girl, J. R., probably convalescent from latent diphtheria (see House Infection G) was in school from Nov. 21 to 23, 1904. Her sister, F. R., who developed typical diphtheria November 22, had been in school that same day. All the children in the same classes with these girls were examined by the medical inspector and cultures were taken of all those that exhibited reddened fauces or enlarged tonsils. Of the seven cultures taken in J. R.'s class all were negative. Twelve of F. R.'s classmates were examined bacteriologically; only one was found infected. Four children from other classes tested at the same time were all found to be free from germs.

## BISMUTH PASTE IN THE TREATMENT OF SUPPURATION OF THE EAR, NOSE AND THROAT

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The use of bismuth paste in general surgery has been followed with such excellent results that, except for the fact that the nose and middle ear and their accessory cavities are non-collapsible and lined with mucous membrane, one might reasonably expect equally good results in the treatment of chronic suppurations of the nose, throat and ear. Nevertheless, my results have been so satisfactory and encouraging that I desire to present my efforts to the profession.

I began to employ the paste shortly after Dr. Emil Beck noticed cures in his cases of chronic suppurative fistulas and abscess cavities; that is, about one year ago. During this period I have treated 319 cases, which are classified in the accompanying tables, and the results of treatment noted.

Judging from the manifold varieties of pathologic conditions in which I employed the paste, one may be led to believe that my enthusiasm has carried me too far, and that I am trying to apply the bismuth paste as a panacea for all ills. I acknowledge that I am enthusiastic, but I have never employed a treatment with as much satisfaction as this one.

It will be well to define beforehand what is meant by a cure of a chronic suppuration of the accessory cavities of the nose and ear. To my mind, when the cavities have stopped discharging pus, the mucous membrane appears healthy and the functions of smell, taste and hearing return, as well as the symptoms of pressure and obstruction disappear, one may accept that as a cure. We all know that perfect resolution is not to be expected, owing to some fixed changes and destructions, as necroses, adhesions and atrophies.

I have taken radiograms in some of the cases showing the frontal sinus, ethmoid, antrum and sphenoid before and after being injected, in order to determine how long the bismuth will remain in the cavities, but came to no definite conclusion.

### TECHNIC

The principal point in the technic is to be able to reach the very depth and every part of the infected area. The necessary equipment consists of four varieties of the paste and the syringes, with various-shaped tips and canulas (Fig. 1).

PASTE 1

| | |
|---|---|
| Bismuth subnitrate | 33 |
| Vaselin | 67 |

PASTE 2

| | |
|---|---|
| Bismuth subnitrate | 30 |
| Vaselin | 60 |
| White wax | 5 |
| Paraffin, melt 120° | 5 |

PASTE 3

| | |
|---|---|
| Bismuth subnitrate | 30 |
| Vaselin | 50 |
| Paraffin | 10 |
| White wax | 10 |

PASTE 4

| | |
|---|---|
| Bismuth subnitrate | 30 |
| Vaselin | 35 |
| Paraffin | 25 |
| White wax | 10 |

The paraffin and white wax are added for the purpose of obtaining more firm preparations, when so specially indicated.

Paste 1 is used principally in the localities where one wishes to cover rather than to distend, and I have used it as a local treatment in the nasal mucous membrane in hypertrophic rhinitis, and have given it to the patient in the collapsible tube.

Paste 2 I have employed universally, and shall do so for all the conditions except in the filling up of the defect of the simple mastoid operation, when Paste 3 is used. This is also employed as a dressing for the septum and turbinated operations and again as the primary dressing of the radical mastoid (plastic).

Paste 4 is used only in the radical frontal sinus operation to act like a plug.

quires to be metal, inasmuch as the rubber distends and soon breaks.

It is well to keep the syringes in a place not too cold or too warm, as the consistency of the paste is affected by the temperature.

The technic in the special pathologic conditions mentioned will suggest itself to any one and is easy of execution by those who are accustomed to treat these cavities. I only wish to mention some points that have appeared to me as being different from the usual technic. Cocainizing in hypersensitive individuals is at times necessary.

In atrophic rhinitis, ozena, nasal dressing after tur-

| Description. | Cases. | Bilateral. | Unilateral. | Cured. | Improved. | Not Improved. | Discont. Treat'm. |
|---|---|---|---|---|---|---|---|
| **SERIES I. NASAL ACCESSORY SINUSES INJECTED WITH BISMUTH PASTE** | | | | | | | |
| Chronic suppuration of the accessory sinuses not operated on. Bismuth paste injected in the region of the openings | 43 | 19 | 24 | 2 | 10 | 27 | 4 |
| Chronic suppuration of the frontal sinus, ethmoidal cells, antrum of Highmore and sphenoidal sinus in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected | 4 | 3 | 1 | 1 | 3* | .. | .. |
| Chronic suppuration of frontal sinus, anterior ethmoidal cells and antrum of Highmore in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected | 20 | 14 | 6 | 8 | 9* | 1** | 2 |
| Chronic suppuration of frontal sinus and anterior ethmoidal cells in which a middle turbinectomy and ethmoidal exenteration had been performed. Bismuth paste injected | 9 | 5 | 4 | 2 | 6* | .. | 1 |
| Chronic suppuration of antrum of Highmore of dental origin and nasal origin. Primary puncture at inferior meatus. Bismuth paste injection | 4 | 1 | 3 | 4 | .. | .. | .. |
| **SERIES II. INTRANASAL CONDITIONS** | | | | | | | |
| Atrophic rhinitis. Bismuth paste injected | 5 | 4 | 1 | 4 | 1* | .. | .. |
| Luetic ozena. Bismuth paste injected | 2 | 2 | .. | .. | 2* | .. | .. |
| Pseudomembranous rhinitis. Bismuth paste injected | 1 | 1 | .. | 1 | .. | .. | .. |
| Maggot infection. Bismuth paste injected | 1 | 1 | .. | 1 | .. | .. | .. |
| Suppuration associated with and following removal of foreign bodies from the nose. Bismuth paste injected | 1 | .. | 1 | 1 | .. | .. | .. |
| Tuberculous vestibulitis. Bismuth paste injected | 1 | .. | 1 | 1 | .. | .. | .. |
| Middle turbinectomy in non-suppurative condition. Bismuth paste injected as dressing | 19 | 12 | 7 | Checks bleeding, no suppuration, nor | | | |
| Inferior turbinectomy. Bismuth paste injected as dressing | 14 | 14 | .. | odor, no granulation or synechia fol. | | | |
| Submucous resection of the septum. Bismuth paste injected as dressing—bilateral | 42 | No bleeding, granulation or crust formation. | | | | | |
| Hypertrophic rhinitis, principally of inferior turbinated body. Bismuth paste injected | 42 | 42 | .. | 0 | 30 | 6 | 6 |
| Ulceration of the septum. Bismuth paste injected | 6 | 2 | 4 | 2 | 4 | .. | .. |
| Suppurative dacryocystitis. Bismuth paste injected | 3 | .. | 3 | 3 | .. | .. | .. |
| **SERIES III. MASTOIDS AND EAR** | | | | | | | |
| Otitis, external, furunculosa. Bismuth paste injected | 4 | 1 | 3 | 4 | .. | .. | .. |
| Otitis externa eczematosa. Bismuth paste injected | 2 | 1 | 1 | 2 | .. | .. | .. |
| Chronic otitis media suppurativa. Bismuth paste injected either through external auditory canal or Eustachian tube | 30 | 12 | 18 | 12 | 6 | 4 | 6† |
| Chronic suppuration following the semiradical (Heath) mastoid operation. Bismuth paste injected | 4 | .. | 4 | 2 | 1 | 1 | .. |
| Chronic suppuration after radical mastoid operation. Bismuth paste injected | 8 | 1 | 7 | 1 | 5 | 2 | .. |
| Scale formation. Bismuth paste injected | 3 | 2 | 1 | 3 | .. | .. | .. |
| Acute mastoid operation. Filling defect with Bismuth paste and complete immediate suture | 7 | .. | 7 | 7 | .. | .. | .. |
| Semiradical mastoid operation. Bismuth paste injected instead of inflation as a subsequent dressing | 3 | .. | 3 | 1 | 2* | .. | .. |
| Radical mastoid operation. Bismuth paste used as a dressing instead of gauze packing and drainage | 9 | 1 | 8 | 8 | 1* | .. | .. |
| **SERIES IV. TONSILLAR AFFECTIONS** | | | | | | | |
| Peritonsillar abscess; small incision and injection of Bismuth pasta | 3 | 1 | 2 | No other return of abscess for one year. | | | |
| Chronic lacunar tonsillitis and supratonsillar infection. Bismuth paste injected | 29 | 8 | 21 | 5 | 20 | 2 | 2 |
| Summary | 319 | | | | | | |

* Still under treatment.
** Operated on by external method.
† Besides 2 operated on.

It is very important to have the preparation of the paste correct, and these are the directions we have followed: To either yellow or white vaselin, sterilized by boiling, then taken off the flame, the bismuth is gradually added and thoroughly stirred. In Pastes 2, 3 and 4 the wax and paraffin are added in their proper proportions. The syringes are filled while the paste is in the warm and liquid state.

The syringe (Fig. 1) is an essential element in the carrying out of the proper treatment, for until the syringe was perfected the results were not as satisfactory. It is a powerful instrument that works on the thread principle. The flexible tube is essential and re-

binectomies, septum operations, and other conditions in which one desires to fill the nasal cavities completely, one can occlude the posterior choana by placing one finger postnasally in it, or by using a postnasal tampon until the cavity is filled and then removing the tampon. I have, however, discontinued the use of these devices and simply instruct the patients to close off the nasopharynx from the oropharynx by repeating the letter K while I am injecting.

Some of the paste may pass into the postnasal space and drop into the mouth, but sufficient usually remains to do the work. In the injection of the antrum of Highmore one must pack firmly the middle meatus, particu-

larly the nasofrontal duct, in order that the paste may not escape at this point. If there be more than one opening, for instance, in cases of patients previously operated on, with persistence of an opening in the inferior meatus or canine fossa, then one of these openings must also be blocked, for the same reason. These packings are, of course, removed following the injections. In the frontal sinus, ethmoidal region, antrum and sphenoid injections, the general nasal cavity is always thoroughly filled in addition, in order to retain the paste in the cavities and also to affect the mucosa of the general nasal cavity.

The patient is to be placed in the best position to retain the paste while being injected, generally the semi-reclining position.

In the treatment of chronic suppuration of the ear one will necessarily determine the size of the perforation and the presence of a fistula of the labyrinth before injection. A pin-point perforation will not permit free drainage or the easy flow of the paste into the attic and beyond it. The injection of a fistula of the labyrinth may be followed by severe symptoms of irritation. I have employed the paste in both of these conditions and have encountered such difficulties.

In the application of the paste following the radical operation of the mastoid, one will complete the technic in the same way as if he were going to pack with gauze. Just before filling the cavities created by the complete exenteration, the assistant is instructed to press a pad of gauze firmly over the posterior sutured incision, in order not to permit the paste to get under the skin and through the stitches in the incision. This should be done also at the next two subsequent dressings until firm union has taken place.

How often to inject is a matter to be determined by the pathologic conditions and symptoms present. As a general proposition, however, I have reinjected daily until the patient was well or so much improved that less frequent treatments were warranted. Suppurations of the nasal accessory cavities require more frequent injections and much longer time for treatment. In the cases of ear suppuration, in which the discharge stopped, it stopped very soon, and the ear did not have to be reinjected as often. This is accounted for by the fact that the paste was retained better than in the nose and some of the sinuses. The antrum and sphenoid retain the paste longer and better than the frontal and ethmoidal regions.

The good results ascribed to the use of the bismuth paste in this special field are very likely due to several causes. Dr. Emil Beck, in his recent article, read before the International Congress on Tuberculosis, says, in abstract:

> Many factors undoubtedly contribute to the healing process, but I am convinced that the bactericidal effect of the bismuth subnitrate is the most prominent one. In nearly every case treated we have noted that the injections are followed by the gradual diminution and final disappearance of the micro-organisms. Tubercle bacilli are no exception. This fact was discovered in a case of tuberculous empyema, and corroborated by another typical case. Whether the bismuth subnitrate destroys the bacilli by its chemical action or whether it exerts a chemotactic power has not yet been definitely determined. I am inclined to believe the latter to be the case. The fact that the number of tubercle bacilli at first increase in number, and are found mostly in the interior of the leucocytes, while before the injections were started they were very scanty and mostly extraleucocytic, supports the chemotactic theory.

My own belief is that in the first place either the bismuth or the nitrate, coming in contact with the tissues, produces such a change in the inflammatory cells and leucocytes of the infected area that they are enabled slowly to destroy the vegetable organisms. When these are destroyed, then the process undergoes resolution, providing that there be not present some foreign body, as a sequestrum or necrosis.

Again, by filling up the cavity, the paste prevents the accumulation of fluid and the ingress of air, which may carry micro-organisms. Or the uniform pressure exerted on the tissues under moderate distention may act beneficially. It can be used as a framework to obliterate a cavity only in the cases of acute mastoid operation or following the radical frontal sinus operation, as shown in my cases.

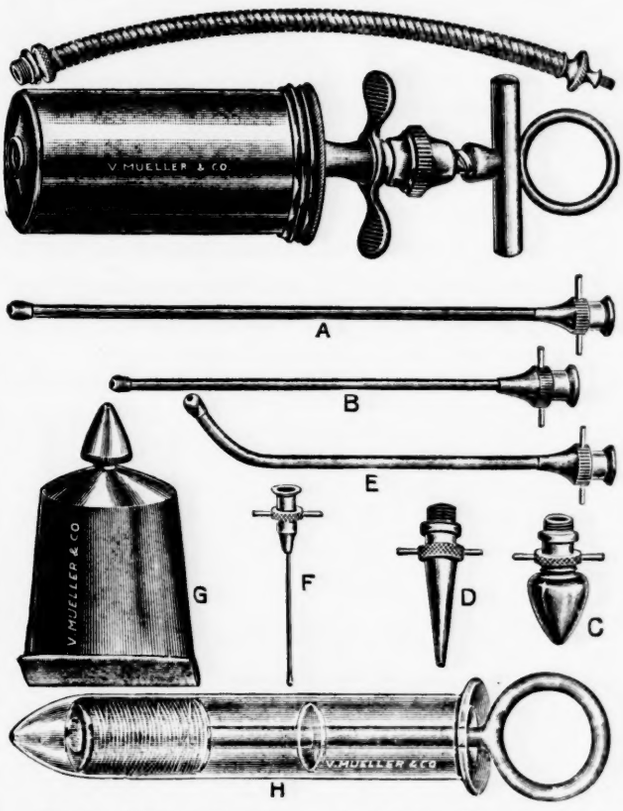


Fig. 1.—Metal syringe for use in injecting bismuth paste into the ear, nose and throat.

Tip A.—A silver canula that can be bent to suit each individual case and is used in the injections of the various sinuses after their openings have been made accessible.

Tip B.—A finer silver canula, which is used for injection into the regions of the nasofrontal duct, sphenoidal sinus region, and the upper, narrowest portions of the nasal cavity; that is, before any operation is done; also into the tonsillar crypts, supratonsillar fossæ, and into the incised peritonsillar abscess cavity.

Tip C.—An olive-shaped tip for injecting the ear paste into the perforations and beyond, even through the tube into the nasopharynx.

Tip D.—Fits into a Eustachian catheter, and is used for injecting the tube and middle ear by the nasopharyngeal route. It is also used to fill up the cavity of the mastoid process after the simple operation.

Tip E.—Eustachian catheter with large bulbous end.

Tip F.—Very fine canula for injecting the tear ducts and other fine fistulas.

Collapsible Tube G.—For the patient's own use for home treatment. While the result from its use will be insignificant, because not all the parts can be reached, it is convenient and necessary in some cases. The conical tip is introduced either into the vestibule of the nose or external auditory meatus, and the paste expressed.

Glass Syringe H.—The same that is used for general surgical work; is practically for the use of the paste in injecting the general nasal cavity, and also the ear, after the sinuses, as well as the middle ear have been filled by the metal syringe. After the various operations on the turbinates and septum, this syringe is used with good effect; in other words, for general application, as the dressing for the nose and ear.

Another factor that must be considered is the coating property of the bismuth to the mucous membrane. That bismuth subnitrate has beneficial properties as a nasal dressing I have been convinced for several years, because I have employed it in connection with gauze packing, impregnating the same after intranasal operations, and I am aware that other rhinologists have also made use of it for the same purposes.

As to the effect of the bismuth subnitrate on the general circulation of the body by its absorption, it can scarcely be considered in our line of work, as the quantities used are too small, and with the exception of the acute mastoid and a radical frontal sinus operations are not pent up for absorption.

Definite toxic symptoms arise from the constant absorption of bismuth subnitrate, namely, a black line along the gums, ulceration of the mouth, albumin in the urine and diarrhea. None of these symptoms has occurred in any of my cases, and the reason for it is probably that too small a quantity is used, and in the majority of the conditions there is a constant escape of the paste. This is in marked contradistinction to the use of the paste in general surgery, in which large suppurating cavities, as those in pleural empyema, joint cavities, etc., are enclosed and bismuth subnitrate is constantly being absorbed.

In support of the bactericidal effect of the paste, I have made observations of about 100 smears in my cases, and have found that with a few exceptions the pathogenic micro-organisms disappeared shortly after its use. Whenever the micro-organisms persisted or returned, the results were poor or negative, and more radical surgical treatment was necessary; in other words, the paste did not reach the infected areas or some pathologic process, as a sequestrum or necrosis, was responsible for the failure. This failure occurred particularly in ethmoidal and mastoid suppurations. In the former condition a very thorough exenteration of the multiple cells is necessary before injection.

In two cases of chronic suppuration of the middle ear in which treatment by bismuth injection was given for a long period and finally radical operation performed, I found that the paste reached only as far as the antrum of the mastoid, and not into it. The antrum and mastoid cells were not much filled with granulations and obliterated, and the paste could easily have passed into them. I concluded, therefore, that this failure of penetration to the remote portion of the mastoid was either due to the escape of the paste through the Eustachian tube into the nasopharynx, or, what was more likely, that the presence of the air in the cells did not permit the paste to flow in. In the second case I attempted to close the pharyngeal orifice of the Eustachian tube by means of a bulbous probe during injections, just before operation, and found precisely the same condition as in the first case. The attic, middle ear and its Eustachian orifice, as well as the aditus ad antrum, were thoroughly packed with the paste. In the very near future, in a radical mastoid operation, I shall open the tip of the mastoid alone and inject, in order to prove this point.

## EXPERIMENTAL WORK

I wish to put on record the following subjects of experiment at this time. I will report my results subsequently:

1. Injections of nose and its accessory sinuses and middle ear and its accessory cavities on the cadaver.

2. Comparative study of the chemistry of bismuth subnitrate and other bismuth preparations, and their action on bacteria on artificial culture media, in animals and man.

3. Comparative value of bismuth subnitrate in different strengths and combination of the four ingredients in paste form in chronic suppuration of the nose, throat and ear.

4. Comparative value of bismuth subnitrate, zinc stearate and other zinc salts, calcium salts, barium salts, silver salts, mercury salts and other salts in paste form in chronic suppuration of nose, throat and ear.

## CONCLUSIONS

1. The anatomic-physiologic conditions of the nose, middle ear and their accessory cavities play an important part in the healing of chronic suppurations, because they are non-collapsible, lined by mucous membrane and the mastoid and ethmoids are multicellular.

2. In the majority of cases of nasal accessory sinus suppurations some slight operation, as puncture or middle turbinectomy, is essential to a cure; that is, in order to enable one to inject the sinuses properly.

3. The middle-ear suppurations respond very readily to the treatment if the disease process is confined to the cavity of the middle ear, attic and aditus ad antrum, and if no necrosis be present; but when the mastoid cells are involved, and necrosis is present, the result will be practically *nil*.

4. The simple mastoid operation for acute mastoiditis is markedly simplified and healing much shortened by the filling up of the created defect.

5. As a dressing in the radical mastoid it is the procedure *par excellence* and produces more rapid epidermization than any other treatment.

6. When a chronic suppurative middle ear treated for some time by the injection of bismuth paste does not get well, this is an indication for operation, either semiradical or radical.

7. As a nasal dressing in turbinectomies and septal operations, bismuth paste has served me better than any other in that it checked the bleeding, prevented infection and decomposition and synechial formation, especially in ethmoidal operations.

8. From the great variety of conditions that I have treated and the large number of injections made, I have never had any serious results or complications. I consider this a very safe procedure. At the same time a thorough knowledge of the pathologic anatomy and diagnosis—in other words, the specialist's technic—is absolutely indispensable in obtaining good results.

9. Not enough time has elapsed to say definitely what the limitation of the bismuth paste treatment is, and to-day I would use it in any case of chronic suppurations of the nose, throat and ear. I wish to state distinctly that I never use it in acute conditions, since I have found out that violent reaction followed its use.

10. Finally, this is not the only treatment that will cure or improve chronic suppuration, aside from surgery. Especially are some of the modern modes of treatment, as vaccine therapy, Bier's suction treatment, and irrigation of the sinuses, of inestimable value, and I have had some excellent results from their use, but not as good as from the bismuth paste.

## CASE REPORTS

I shall not report all cases in detail. The tables suffice to illustrate the vital points of the total number,

but I wish to call attention to some typical cases of each variety of the disease.

CASE 1.—*Patient.*—Miss M., aged 24, several years ago, had a violent attack of grip, with very severe head symptoms. After recovery from the acute trouble she constantly suffered from frontal and occipital headaches, especially in the mornings, and there was a constant discharge from her nose and into her throat on both sides. These conditions persisted, only at times she would have worse head pains and the discharge became more and more offensive, but not so profuse as at first. The smell and taste, as well as the sight, were very much dulled. The gastrointestinal disturbances were quite marked at times.

*Examination.*—There was mucopurulent discharge from both nostrils, below as well as above the middle turbinated bodies. The mucosa had an angry, red appearance of chronic inflammation. The inferior turbinated bodies were hypertrophied; the postpharyngeal wall glazed, and the epilarynx markedly congested. There was general malnutrition of the body and anemia. Transillumination showed frontal and antral involvement. The *x*-ray showed the whole anterior group involved.

*Operation and Treatment.*—This began March 10, 1908, with irrigation of the various sinus regions with mild alkaline solution, followed by suction treatment, and local application of argyrol to the nose and throat. There was some improvement after two weeks, but discharge of pus and other symptoms persisted. Bismuth paste 1 injected in the regions of the various openings of the nasal accessory sinuses, and also the whole general nasal cavity, for about two weeks, appeared to improve the condition to some extent. I then removed the whole middle turbinated body on the right side, curetted the ethmoidal region, enlarged the nasofrontal duct by Good's rasp, and opened the sphenoidal opening by the curette sufficiently to enter with the canula of the bismuth syringe. I punctured the antrum at the inferior meatus with Krause trocars. I then injected the frontal, sphenoidal antrum and ethmoidal region, as well as the entire nasal cavity on the right side, but for control I did nothing on the left. I treated this side with irrigation, suction, etc. The patient had practically no bleeding following the operation. The after-treatment consisted in refilling the above-mentioned sinuses and nasal cavity until the discharge stopped and other symptoms improved, which was in about eight weeks. The left side did not improve at this time, and so the same treatment was carried out on the opposite side.

After four months the patient was completely cured.

I had four of this kind of cases with the result given in accompanying tables. Thirty-one cases, differing only in that the suppuration existed in the anterior group of sinuses, as the frontal, ethmoidal and antrum, were treated in the same manner, with results given in the accompanying table.

CASE 2.—*Patient.*—Mrs. H., aged 26, for several years had been having trouble with her nose. Large crusts accumulated in both her nostrils, which she would with difficulty expel every morning. An offensive odor was present, with no sense of smell or taste.

*Examination.*—The patient had been under treatment by the usual method for a long time. The usual picture of atrophic rhinitis was presented. The pharynx was glazed.

*Treatment.*—Both nasal cavities were filled to distention with bismuth paste 2 every day for two weeks. The postnasal space was closed off by either the finger or temporary introduction of a postnasal tampon. At that time the crusts did not form. The treatment was carried out every other day for another month.

*Result.*—I then declared the patient cured. I mean that the mucous membrane had a very good appearance, and the crusts did not form. The odor was absent, and the pharynx was not so dry and patient felt well. The sense of smell did not return, but the taste was improved. I gave the patient the collapsible tube, filled with bismuth paste 1, to use at home every evening, to fill her nostrils, and instructed her while doing so to repeat the letter K in order to prevent the paste from falling into the nasopharynx and below.

CASE 3.—*Patient.*—Mr. D., aged 27, complained of a nasal obstruction, and constant dropping of mucus into the throat, compelling him to expectorate. This had been present for a long time.

*Examination.*—Both inferior turbinated bodies were hypertrophied and there was a slightly deviated septum, also a chronic pharyngitis.

*Treatment and Operation.*—I used bismuth paste 2 for about two months, filling the general nasal cavities to full distention every day, and usually on the following day would find remains of the paste within the nasal cavity. There followed very little change in the hypertrophy, but the mucosa appeared healthier and the nasal discharges less in amount. Patient expressed a sense of improvement. I next performed a partial inferior turbinectomy on both sides, and filled the nasal cavities completely with bismuth paste 3. Practically no bleeding followed. Next morning, as well as the following three days, the nose was refilled with the same paste. On inspection of the wound surface there were neither granulations nor the usual reaction that follows packing or other methods of dressing. In similar cases, if at the time of operation there occurs considerable bleeding, or if the posterior ends are markedly hypertrophied, I employ my concho-angiotribe (Fig. 2), which prevents any hemorrhage. The final result was perfect nasal breathing.

CASE 4.—*Patient.*—Mr. McE., complained of unilateral deafness and difficulty in breathing through left side of nose.

*Diagnosis.*—Deviated bony and cartilaginous septum. Retracted left tympanic membrane.

*Operation and Treatment.*—I resected submucously the cartilaginous and bony septum by the Killian method. Bringing the flaps in apposition and holding them by a clamp, I filled

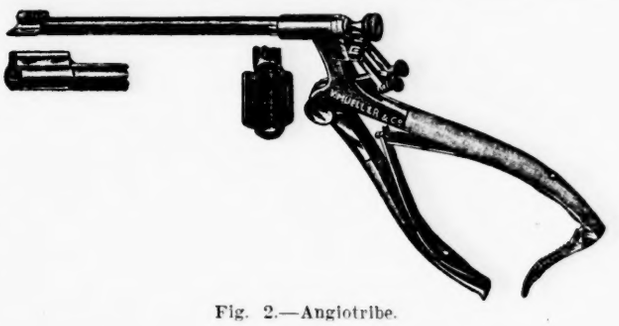

Fig. 2.—Angiotribe.

both nasal cavities to full distention, especially the vestibular regions, using paste 3. This latter procedure was repeated the next day.

*Result.*—On the third day the septum was thoroughly healed and, no evidence of hematoma or infection being present, the result was considered perfect.

CASE 5.—*Patient.*—Mr. E., aged 26, complained of severe pains in his left ear, especially when his outer ear was touched, of some dizziness, and of not hearing well with the left ear. He had a running ear since childhood, which stopped for as long a time as one year.

*Examination.*—This showed marked stenosis and much inflammation of the external auditory canal. There was scanty, foul-smelling discharge, smears of which showed a very short bacillus and staphylococcus; also a number of non-pathogenic micro-organisms, as proved by Petri dish colony culture. The tympanic membrane was perforated at the lower anterior quadrant, the perforation being of the size of a millet seed, the remainder of the tympanic membrane being intact, but very much thickened. Test of hearing showed reduction in the lower tone of about one-half. Bone conduction much increased on that side (the Rinné test was negative). Test of the vestibular apparatus showed same intact by means of the Berany method (hot and cold water). Nasal examination showed a marked deflection of the septum (cartilaginous) to the left.

*Diagnosis.*—1. Chronic suppuration of the middle ear. 2. Acute exacerbation of chronic external otitis.

*Treatment.*—This consisted at first of gauze drainage and inflation. Some improvement followed after two weeks. The acute external trouble was promptly relieved by moist dressings of lead acetate solutions. Discharges from the middle ear were examined and still showed the same micro-organisms. Submucous resection of the septum and above treatment, continued for two more weeks, resulted in no improvement, except that the dizziness disappeared. At this time began the use of bismuth paste 1 by means of the Eustachian catheter for one week. Secretions were again examined microscopically. A marked diminution of the micro-organisms was found. I now injected bismuth by way of the tube as well as the external auditory canal, using paste 1 by former method, and paste 2 by the latter method. This treatment was repeated every third day for two weeks. At the time of the injection the patient always complained of dizziness, which, however, disappeared in a few moments afterward, and was explained by the pressure on the labyrinth by the bismuth paste. After this period the paste was thoroughly removed from the canal, as well as through the perforation by the suction method, and inflation, and examined two days later, when I discovered that the ear was dry and that the perforation was closing.

*Result.*—One week later the perforation closed and the tympanic membrane showed the usual anatomic parts. The hearing is now practically normal and the patient is considered as cured. The patient was seen two months later in the same satisfactory condition.

CASE 6.—*Patient.*—Mr. L., aged 38, for many years had been afflicted with a foul-smelling discharge from his left ear, and for the past six months (one and one-half years ago) had been having great pains along side of the head, and at times nausea and vomiting and marked dizziness.

*Examination.*—A large granuloma practically filled the whole external auditory canal. There was a scanty discharge, the smears of which showed a pneumococcus of Friedlander in almost a pure culture. Temperature every day was about 101 F. Hearing was markedly reduced. There was general anemia and malnutrition.

*Operation and Treatment.*—The first steps were removal of the polyp which measured a little over one-half an inch; gauze drainage for the next two weeks; repeated cauterization of the stump; silver nitrate and alcohol instillations. The local condition improved considerably; the pain in the head was lessened, and temperature became normal. The discharge was more profuse. The next measure consisted in local instillation of drops and irrigations, with practically no improvement whenever the treatment was discontinued for a day or two. The third step was radical mastoid operation, with gauze packing. The usual uneventful recovery followed, but the discharge, while less in amount, still continued and appeared to come from the region of the posterior semicircular canal. The patient frequently complained of attacks of dizziness. In December, 1907, the patient was subjected to the vaccine therapy by preparing the autogenous vaccine from the aural discharges (pneumococcus). The opsonic index, which at first was very low (0.63), was raised following the third vaccination to nearly 1. But the discharge, while becoming a little less in amount, continued for about two months. When again examined microscopically, it showed the same micro-organisms. On March 1, 1908, I began the treatment by means of bismuth paste 2 by way of the auditory canal under considerable pressure, following which the patient became very dizzy and on attempting to rise would fall to the affected side. Nausea very marked, and nystagmus to the affected side took place. Drs. Hanau Loeb, of St. Louis, and Emil Mayer, of New York, were present at this interesting observation. My diagnosis was that there was an erosion or exposure of the semi-circular canal, and that some of the paste had entered the same. These symptoms, however, subsided after a few hours. I reinjected, though not with as great an amount of pressure, every day for the next two weeks. Then I removed all the paste and after two days re-examined and found that the discharge had changed to one of a more watery character. Microscopic examination showed but few pneumococci. I reinjected every other day for a month, and again repeated the above examination and found that the smear was free from micro-organisms. I reinjected and requested the patient to return a month later, at which time I found the paste in a dried-up state.

*Result.*—After the removal of the paste the ear healed completely and epidermized. The dizzy spells have also disappeared, but the patient's hearing remains very poor.

CASE 7.—*Patient.*—Mrs. O'B., aged 68, for the past six months had had a running right ear, following a cold in the head, in spite of the care of her family physician. About two weeks previous to examination she had another bad cold, followed by pains in the ear and back of the ear, with a swelling extending down the side of the neck, and generally feeling bad. Her hearing had been much impaired within the last two or three weeks.

*Examination.*—This showed marked swelling over the right mastoid region, especially at the tip and below the tip. The canal was filled with a purulent discharge; there was no odor. The upper posterior canal wall was sagging; tympanic membrane was perforated at the posterior quadrant, the remaining portion being much thickened and congested. Smears of the discharge showed small bacilli and cocci, most probably of an influenza.

*Diagnosis.*—Acute mastoiditis; exacerbation of a chronic purulent otitis media.

*Operation and Treatment.*—Under a local anesthetic, subperiosteal, using 2 per cent. cocain, and 1 to 1,000 adrenalin mixture, I performed the simple mastoid exenteration, taking care to preserve the periosteum. The entire mastoid process, including the antrum, was thoroughly exenterated of its granulation. The cavity was made bloodless by an adrenalin pack for a few moments; I then filled the cavity entirely with bismuth paste 3. Four strands of silkworm gut were placed over this mass and allowed to come out at the lower angle of the wound for capillary drainage, and uniting the same completely along its entire extent. A small strip of ear gauze was inserted into the external auditory canal.

*Postoperative History.*—The patient stood the operation without experiencing the least pain or shock. On the following morning the temperature was normal, and the patient felt perfectly well. The wound was dressed on the third day. The gauze was removed and found to be dry. Examination of the canal showed it to be dry and the perforation closing. Posterior incision appeared angry, red and edematous. There was slight, fatty drainage along the silkworm-gut sutures. The temperature remained normal during the rest of the time. The dressings were repeated daily and showed the redness and swelling at the posterior incision rapidly disappearing, and the silkworm-gut threads were removed on the sixth day and wound closed. The test of hearing showed practically normal hearing. Examination of tympanic membrane showed perforation closed. Six weeks later the patient was still in the same condition.

CASE 8.—*Patient.*—Mr., L., aged 34, ever since childhood had had a running ear associated at times with severe pains on the left side of the head. A few years ago, while living in Holland, he had a violent attack of mastoiditis and was advised to be operated on.

*Examination.*—A very firm body of bony character practically filled the entire external auditory meatus, and was attached to the upper posterior margin. Along the anterior inferior slit a thin cotton wound probe demonstrated a foul-smelling pus, containing few cocci. The hearing was practically *nil*, Rinné was very much shortened and positive.

*Operation and Treatment.*—Radical mastoid. The hard, bony body proved to be an osteoma. The antrum, aditus and attic were filled up with masses of cholesteotoma, and the remains of the ossicles were necrotic. The mastoid process was sclerotic. The usual technic of a radical mastoid, plastic operation, was performed. The assistant was instructed to hold a pad of gauze firmly over the retro-auricular closed incision on to the bone, and I filled by way of the external auditory meatus the exenterated cavities, attic, aditus ad antrum, antrum and mastoid cells as well as the auditory canal to full distention with bismuth paste 3, thus holding the flaps in position and the assistant preventing the paste from escaping under the periosteum and through the incision. This

procedure of refilling with the assistant holding the retro-auricular region was performed after two days and after that only once a week for a period of three weeks.

*Result.*—At the end of this time the paste was removed, and I found the cavity entirely epidermized. The usual large canal, especially in the region of the aditus ad antrum and attic, was wanting, and in its stead was a formation, hard in consistency and possibly of bony character.

In other cases, after similar treatment, this formation was not present to the same degree, but the canal is always smaller in the aditus region than that obtained by means of packing. I am not particularly sorry for that, as the large canal only harbors epithelial masses. This case was an example of the most rapid epidermization I have ever seen.

CASE 9.—*Patient.*—Mr. S., referred by Dr. D. for acute mastoid operation, similar to case of Mrs. O'B.

*Operation and Treatment.*—After thorough exenteration of the mastoid cells, the cavity was filled with gauze and drained for three days, after which the gauze was removed and bismuth paste 3 substituted. Injections were repeated every three days for two weeks; then once a week for three weeks.

*Result.*—The cavity was healed. This case is an example of more rapid healing, fewer granulations, and less defect than obtained by the usual method of gauze drain.

CASE 10.—*Patient.*—Mr. B., aged 49, as long as he could remember, had had a discharge of pus from his left nostril, associated with headaches, especially over the eyes, and difficult breathing through left nostril.

*Examination.*—This showed marked tenderness over left frontal sinus in contradistinction to the right sinus. Transillumination was positive on the left side. Radiogram showed involvement of left frontal, ethmoidal and antral regions. Examination of the nose showed multiple myxomatous polypi and mucopurulent secretion on left side, the right being free.

*Operation and Treatment.*—The first steps were removal of the multiple polypi, middle turbinectomy, ethmoid curettement, and puncture of the antrum and inferior meatus, and immediate injection with bismuth paste 2. The entire nasal cavity was daily filled with the same substance. The patient much improved as to his frontal headaches, but after six weeks of this sort of treatment he still had a purulent discharge from the frontal duct. Passage of the canula into the frontal sinus was impossible. A second operation was therefore performed. After local periosteal anesthesia over the left eyebrow a small incision was made down through the periosteum into the bone, and a small opening was trephined, into which the tip of a metal syringe was introduced and the cavity filled to distention with paste 2. By nasal examination observed during injection, the escape of the paste from the naso-frontal duct. This region was firmly packed, the sinus (frontal) injected through the external opening until it returned along the tip. The small incision was closed with one suture.

*Result.*—The patient made an uneventful recovery and I trust the trouble will not return.

CASE 11.—*Patient.*—Mr. P., aged 47, for about one year had been suffering with headaches over the eyes. These pains increased in severity, and since the last two months he had attacks about once a week that were almost unbearable and required the physician's aid, who has given him a hypodermic injection of morphin. The pains were worse in the morning.

*Examination.*—The eyes were practically negative. In the nose there was no evidence of pus, but a polypoid mass was seen under the anterior end of the middle turbinated body, and this body was crowded towards the septum, especially on the left side. Transillumination and radiograms were positive of frontal sinus involvement of the left side.

*Operation and Treatment.*—The first step was removal of middle turbinated body and ethmoid curettement. The result was only partial relief from head pains. After waiting for several weeks, I decided to do an external frontal sinus operation, according to my method of osteoplastic flap. I found the left frontal sinus filled with pus and edematous lining membrane. The right was free. The result as to the headaches was good; the patient was free from them, but there developed a retention and discharge at the external canthus end of the incision. After a brief period of time I decided to re-enter the frontal sinus from without and under local anesthesia. I removed the bone flap and completed a modified Killian, not removing the orbital roof or floor of frontal sinus, or performing the usual exenteration of the anterior ethmoidal cells through the nasal process of the superior maxilla. Thoroughly curetting the membranes of the frontals, I filled with bismuth paste 4 and closed completely.

*Postoperative History.*—The patient made an uneventful recovery; the wound healed within a week, with very little deformity. A subsequent *x*-ray picture seven weeks later shows the bismuth paste still within the cavity. The nose is in good condition, and healing much shorter than when the cavity is allowed to granulate without the introduction of the paste.

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NOTE.—Because of lack of space, the article is here abbreviated by the omission of some case reports. The complete article appears in the author's reprints.

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# PROPHYLAXIS AGAINST INFECTIOUS DISEASES FROM THE STANDPOINT OF THE PRACTITIONER *

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Investigations of recent years regarding the transmission of infectious diseases have contributed many facts of profound importance. In their bearing on the point of view that should be adopted by the practitioner they have been especially important, because they have made clearer his powers and his responsibilities. They have, indeed, made more definite and certain the fact, which was always logically evident, that practitioners as a body have more power, and therefore more responsibility, in controlling and ultimately destroying these diseases than have any other persons, even including hygienists and health officers. They have this great power chiefly because, owing to their peculiarly close relations with their patients, they are in a better position than are any other persons to educate the laity into a proper comprehension of what lay relations to infectious diseases should be; and because also practitioners are in command, and in almost all instances they alone are in command, at the critical point, that is, in dealing with the sick themselves when the infection has not yet taken its first step beyond the patient.

## NECESSITY OF EDUCATING THE PUBLIC

As to the first of these things that I have mentioned, the power exerted by widely disseminated knowledge is at present so clearly recognized in connection with medical matters, as in connection with others, that it requires no demonstration. One need do no more than refer to the changes that have occurred in connection with tuberculosis. A few years ago the most generally dreaded of all diseases and one of the most hopeless of all problems, tuberculosis has become one of the most encouraging and rational objects of sanitary efforts; and the change has been due principally to the increased knowledge that has been disseminated among the laity regarding the manner of transmission of this disease and the methods of preventing it. We all realize the tremendous influence that education is having in tuberculosis, and we all recognize the profound power that educational measures may exert in all such matters; but it is very striking that we act on this so little

* Read in the Joint Meeting of the Section on Hygiene and Sanitary Science and the Section on Pharmacology and Therapeutics of the American Medical Association at the Fifty-ninth Annual Session, at Chicago, June, 1908.

as we do in the simpler ways that are open to us in the daily course of our lives. There are some very important diseases that could be controlled much more easily and more extensively under present conditions than can tuberculosis, if the intelligent public had an equal comprehension of what needs to be done in these diseases. There are others that could certainly be controlled quite as easily as tuberculosis, and most of the remainder could at least be held in check and reduced in numbers much more successfully than they can now if they also were attacked by similar educational methods.

Yet few of us accept our opportunities to help in doing this. Indeed, many physicians still hold that it is unwise to let the public know much about these things, lest they become unduly fearful and adopt irrational precautions, while many others simply feel that the results of such education are too slight with most human beings to make the effort worth while. Superficially there seems to be some reason in both these objections. Part of the public undoubtedly becomes unduly apprehensive when given a little knowledge regarding matters of this kind, and, unquestionably, with a very large proportion of humanity, teaching has little effect. Yet after all the hysterically apprehensive are a comparatively small fraction of human kind, and not an important one, if tact is used in spreading information; and as to the unreceptive, while they are numerous, they are the very ones that have little influence on the course of the world, and most of them go with the stream, if the current becomes strong enough. The objection that people can not comprehend the meaning of these things is wholly erroneous. If technical knowledge is valuable to the lay public it can always be made comprehensible.

The first thing desirable, to my mind, is a greater dissemination of exact knowledge among the laity regarding the way in which different infections spread, and the methods of preventing this; and this knowledge must come, in large part, not through writings and public meetings, valuable as these are, but through the daily and intimate contact of the practitioner and his patients, and through the acceptance by the practitioner of every opportunity to disseminate simple but correct information regarding these matters. If this is carried out somewhat extensively it will put a stop, I am sure, to a large part of the friction between health boards and practitioners. Much of the difficulty that arises over the intervention of health boards is due to a natural human impulse to rebel when misfortune makes things unpleasant; but a great part of the trouble is due to ignorance, especially to ignorance of the meaning of many of the details that are enforced. A clearer understanding does away with a good deal of the resentment. There will always remain very stupid or very selfish patients, and even doctors. With these force alone will work; but with a somewhat general enlightenment of patients through doctors there will come likewise, on the other hand, a lessening of that not uncommon feeling on the part of health boards that the people they have to deal with have in large part criminal instincts and must be treated accordingly, and there will certainly be a spreading of education among the subordinate officers of health boards in the gentle arts that spring from tact and human kindness. Ignorance in the laity, and tactlessness and thoughtlessness in a few subordinate health officers, are, I think, of about equal influence in producing friction in administering health regulations. A large part of the success of the speaker who is to follow me has been due to his exceptional capacity for carrying out his duties tactfully and without friction.

As to the second reason that the practitioner occupies a position of great power in controlling these diseases, the fact that he guards the critical point in the defense against infections has become apparent through an overwhelming collection of testimony concerning another fact that has long been logically evident, namely, he in a large proportion of instances has the power, by relatively simple means, to limit the infection to the patient, while if it gets beyond that point it may be disseminated so quickly and so widely, and its course may then be so nearly impossible to follow, that it can never subsequently be known that it has been completely destroyed, and it often takes enormous expense and effort to prevent widespread harm. This is, of course, perfectly apparent in connection with the diseases that are highly contagious, and also in connection with those that are freely spread by means of water or food. We have very many records, for example, of the unfortunate instances in which careless management of one case of typhoid fever has caused devastation in a near-by community through infection of the water supply or the milk—all of which could have been prevented by a few simple orders given by the physician and by his seeing that these orders were carried out. But the importance of very exact regulation of the sick in all sorts of serious infections has been strikingly emphasized and illustrated in recent years by a mass of investigation that has become so convincing that, even if in a few details these are not yet quite justified, we should, nevertheless, for safety's sake, make for ourselves two propositions to guide us in some of our most important regulations with the sick.

### THE QUESTION OF CONTAGION AN ACADEMIC ONE

The first of these is that the question whether this or that infectious disease is contagious or not is now, at best, an academic rather than a practical one. Some infections can be transmitted to human beings only by going first through some lower animal; but, given the presence of that suitable intermediate host, they may reappear very quickly in those immediately surrounding the patient or in others that are at a distance. All other infectious diseases, so far as we clearly know, may be, and at times are, directly transmitted from one human being to another. Both classes are transmissible, and the question whether they are what we have called contagious or not is now a wholly indefinite one. The practical questions at present are: In what ways is the disease dangerously likely to be transmitted (that is, by ordinary contact, by food or by water, etc.)? How readily is it transmitted directly under ordinary conditions of contact? How readily and in what ways may transmission be prevented?

The question as to the danger need not be answered in connection with the highly contagious diseases. It is too well answered already by years of experience. As to the common infections that were not long ago classed as non-contagious, I may say this: We have grown well accustomed to looking on tuberculosis as having often been directly transmitted, and all the recent observations greatly emphasize this and make the more remote forms of indirect transmission—even street dust—appear much less important than they have seemed. Recently we have been overwhelmed with a great mass of evidence of the importance of contact infection in

typhoid fever. So important may this be that controlling it may suffice to control a whole local epidemic, as Koch showed in the investigation that was largely responsible for the recent agitation of this question; and Reed, Vaughan and Shakespeare have shown that contact was chiefly responsible for the terrible extension of this disease among the soldiers during the war with Spain.

As an illustration of the extent and the reality of the danger in this disease I may mention that a careful study of over 200 cases under my care, carried out by Dr. Despard, showed that the history indicated strongly that contact was responsible for over 17 per cent. of them, and that in about 8 per cent. more contact was a highly probable cause: an illustration of the fact that, even when we have an active water infection, as we have had in Philadelphia—and, indeed, because we have such a source of cases—contact is very important in spreading the disease. I have also shown that in some general hospitals the whole group of nurses in the hospital are in from six to nine times the danger of the average citizen, though the latter is largely exposed to water infection and though the morbidity of the citizens in Philadelphia has been dreadfully high. With those nurses who are actually engaged in nursing typhoid fever the danger is unquestionably fifteen to twenty times that of the general public, and possibly more than this.

We now recognize equally well that dysentery may be, and often is, transmitted by ordinary contact; and this fact has repeatedly been of terrible significance in institutions, particularly in institutions for the insane, in which generally reduced resistance, together with a lack of appreciation and observance of ordinary care of the person, has often led to a wide spread of the disease. As to the relation between contact infection and the infectious digestive disorders of infancy and early childhood, every observing practitioner is well acquainted with instances in which these have gone through families of little children; and one can hardly ask for any more emphatic evidence of the seriousness and frequency of this matter than the fact that pediatrists are so afraid of such infections that most of them attempt to get babies out of hospital wards as soon as possible after any acute illness, chiefly because of the danger of infections of this sort. Similar gastrointestinal infections are transmitted among adults at times, though such transmission is less frequent with them than with little children, because their resistance to these infections is greater. If, however, from any cause, their resistance becomes decidedly reduced, there is little doubt that they are frequently and sometimes dangerously infected in this way. From observations that I have recently published I am pretty thoroughly convinced that when groups of cases are being treated together, as occurs in hospitals, the serious abdominal complications of typhoid fever may be, and often are, passed from patient to patient through passing on secondary infections which give rise to the complications.

As to other diseases, I need only mention as illustrations a few facts. Pneumonia is known to be at times directly transmitted, and while most persons appear to be resistant to this disease under ordinary conditions, direct transmission may become exceedingly important when the surrounding persons have become reduced in resistance through illness or bad conditions of life. Pneumococcus infections elsewhere than in the lung, especially in the upper air passages, are undoubtedly a great factor in the continuance and spread of pneumonia, and these are often very readily transmitted. Meningococcus meningitis appears from recent studies to be, contrary to previous ideals, in all probability usually transmitted by human contact. It is now common knowledge and common experience that influenza, tonsillitis, coryza and such conditions are extremely readily acquired by contact. Thus we see that, with varying degrees, in all the common diseases contact infection plays a rôle, in all a rôle of some importance, and in most of these diseases it is increasing in recognized importance constantly, as we learn more of it. Even in a disease that is as yet classed as an infection only by inference, namely, acute anterior poliomyelitis, a very recent statistical study by Holt and Bartlett has shown that the evidence of direct transmission is at least sufficient to make one pause and reflect. We have, then, in the increasing and already great importance of direct transmission of practically all common diseases, very forcible evidence of the necessity for careful and precise regulations with each patient, in order to prevent the spread of any of the serious infections and to limit the milder ones as much as can reasonably be done.

### THE IMPORTANCE OF UNRECOGNIZED INFECTION CARRIERS

The second proposition that we should make is that in great numbers of cases and in many diseases it has now been clearly shown that persons who come into contact with infections frequently harbor the germs of the disease for a long time, even though they show none of the ordinary evidences of it, and also that persons apparently long convalescent from infectious diseases often do the same thing; and in this we have a source of infection comparatively recently recognized, a modified form of contagion, so far as symptoms or their absence go, but a very real form of contagion, and a highly important one, in two ways: first, in that it demonstrates a new source of danger and a new thing to be controlled; and, second, in that it goes far to clear up the mystery as to the source of the very numerous cases of infectious disease that could previously be traced to no source, and that could be explained only by a hypothetical distant atmospheric transmission or some such mysterious means. These cases have carried home to us, as nothing else has done before, the importance of contact infection in a multitude of diseases. A quiet sneaking sort of contact infection it is when the person carrying the infection is apparently well, but direct contagion it is, nevertheless.

Such observations are an old and familiar story with diphtheria now. I have myself seen five localized outbreaks of diphtheria in the past four years in which the infection was clearly demonstrated to have been spread about by supposedly healthy or supposedly long convalescent persons, who were actually carrying virulent bacilli. Unquestionably this is an enormously important thing in diphtheria and is the method by which many transmissions of this disease occur. We are likewise familiar with those unfortunates who go about, sometimes even for years, leaving a trail of typhoid fever behind them; and we are approaching the point at which it would appear that pneumonia propagates itself largely in this secretive way. Most persons, in ordinary circumstances, are resistant to the pneumococci that they carry themselves or meet in others, but when in a state of lowered resistance, if they happen to

be carrying a virulent strain themselves or come into contact with some one who has such a strain, they fall ill with a pneumococcic infection which may become an actual pneumonia. Thus, the striking fact that most human beings carry pneumococci about with them is no longer a mere curious phenomenon that would seem to lessen the importance of this organism in that disease. On the contrary, when properly comprehended, it becomes a more grave and significant fact than ever before.

With meningococcus meningitis the circumstances appear to be very similar. Observations such as those of Elser and others in this country, and of Ostermann in Europe, make it appear highly probable that the odd way in which this disease spreads is explained: that most persons who are exposed are not susceptible, but that many of them carry the cocci for some time afterward. While only a few sicken in evident relation to other cases, the spread of the disease appears to be usually through contagion, nevertheless; for the cocci may be passed on from one to another, without any one of them knowing this, until finally a susceptible person falls ill. By this time the relation to the original case may be wholly obscure. Any one who, with our present knowledge, does not isolate this horrible disease is dangerously indifferent or dangerously conservative.

A study of those who have unconsciously acted as infection carriers has already marvelously illuminated the whole question of infection and will light up this question still further. Midway between this source of infection and contact with persons who are evidently sick with a recognized disease lie a group of cases that also are growing increasingly numerous and increasingly important, as we come more and more to the point of making our diagnoses in infectious conditions on bacteriologic grounds, rather than on the situation and the character of the symptoms and physical signs—those cases, I mean, in which there is evidently an illness but in which there is not what we have been accustomed to depend on as the clinical picture of a particular infection; cases, however, in which bacteriologic study shows that there is actually a disease which is known to be readily transmissible. These cases are recognized to be highly numerous at present. We are now familiar with the running ears that may spread diphtheria widely, with the fact that an ordinary "cold" due to a virulent strain of pneumococcus occasionally gives someone else a pneumonia, and with many similar occurrences—all pointing toward contact with the sick as a profoundly important source of infection.

All this, brought down to its essence, means that the infected human being is coming daily to occupy a more and more important position, and is approaching a position of supreme importance as the source of infection in others. Even in diseases such as typhoid fever, in which a large proportion of the infections occur through water or milk, this takes place, not because there is some essential dependence of the disease on water or milk, but because these fluids have recently been infected through the imperfect care of a human case, or in a relatively small number of diseases it occurs through infection of these fluids through a case of one of these diseases in animals. The importance of distant infection through the atmosphere or through fomites, rubbish and the like grows correspondingly less as contact grows in importance, though the influence of bad air, dirt and many other such things in reducing resistance to disease remains great. These latter things are, of course, sometimes of direct importance in producing infection, since some pathogenic bacteria can maintain their existence and their virulence outside the animal body for a long time, and most of them can do this for a short time; but the greater proportion of them probably can not do it very long, and hence they are dependent for their continued existence as disease-producers on continued infection of animals; and with human bacterial diseases this usually means that they are dependent chiefly on continued infection of human beings.

All this comes back to the practitioner in its loud insistence on the greatest possible care with the infected sick, if infections are to be stopped at their fountain-heads. But in this maze of infections among which we live what is the practitioner to do and what is he to teach? There are many ways in which we are as yet helpless, or somewhat helpless at least. Nevertheless, I think that the thing that we need first of all is to get more thoroughly rid of the centuries-old feeling that these diseases are purely chastisements of Providence and must be borne with resignation, and some of us need this riddance badly. The general trend of the recent investigations that I have sketched, and especially the demonstration of the existence of a large group of infection carriers who are not suspected to be such, unless chance or a somewhat laborious investigation proves it, has, with those of little courage, intensified the feeling of sorrowful resignation. These cases do, indeed, make it appear profoundly true that in the midst of life we are in death; and that with chronic infection carriers particularly we have ordinarily no means of recognizing the danger and, therefore, no means of preventing it — at least when these persons have already become infected—until some unfortunate event directs attention to them. The knowledge of their existence, however, is further evidence of our powers, rather than a source of discouragement, if we direct our efforts properly; and they force our attention more strongly toward the first point in the management of infections, namely, that with any serious infectious disease, and not only with those long known to be contagious, some degree of isolation should be earnestly recommended, and this should be made as complete as is reasonably possible. This will meet with a good deal of opposition, but it is already perfectly feasible with a large proportion of the intelligent public, and every advance that was ever made has met with opposition. With the milder infections, even with acute colds, isolation should be encouraged as much as can be done.

The principal way in which this can be acomplished is, as I have already indicated, in making the laity comprehend the reasons for it, and, as I have just said, a considerable proportion of the intelligent laity already comprehend them fairly well. Isolation may, of course, be modified acording to the disease and according to the manner and the readiness of its transmission; but the chief point is to educate the people into the feeling that those sick with any acute infection should be promptly, and as completely as possible, restricted from any unnecessary contact with others. To many persons this seems an extreme proposition, but its rationality needs no argument. To many others it seems impossible that it should do much good, when so many opportunities for infection must inevitably remain open; when many patients and their families will refuse to carry out any sort of isolation; and when someone must always care for the sick, any way. The proper way to look at the matter, however, it appears to me, is to consider each person exposed as possibly starting an endless chain of

infection, the number of links in the chain being possibly doubled, trebled or quadrupled each time it is passed on. We are all familiar with the figures to which such a progression soon mounts. If we restrict intercourse with the sick, we reduce the chances of the starting of such endless chains from five or ten, or more, down to one or two. I have no doubt that, in the apparently narrow sphere of their daily work, a few practitioners can thereby often do as much to prevent disease as a city health officer can usually do in dealing with a whole city; because of the peculiar opportunity in practice to stop the infection before it takes the first critically important step. Much infection must still go on, even if all practitioners make the best efforts possible; but with careful and widespread use of the measures that we have at our command, we can unquestionably reduce greatly the number of cases, and it is only in our dreams that we have thought that infectious diseases would soon be actually stamped out.

In connection, especially with the highly contagious diseases, but also in connection with all serious infections, we need particularly to get rid of the point of view that leads practitioners very commonly to permit a number of persons to have intercourse with the sick, after having explained to them the greater or lesser chances that they may get the disease themselves or may carry it to others. This is practically, with many persons, daring them to face the disease, if they have the courage; and since, in a large proportion of instances, they learn that the chances that they will get the disease themselves, if they are in good health, or have had it before, are small, they very often do have the courage. It is not the province of the laity to decide whether they should do these things. It is the physician's responsibility; and quiet, tactful, but serious advice should be given against any unnecessary contact with any infection, more especially the acute infections. People should be plainly told that, with our present knowledge, we must consider that there is not only more or less danger to themselves, but also that, while the danger to themselves is in most instances slight, the old discussion as to whether this disease or that can be carried from the sick to a third person through an intermediary has been pretty well answered in the affirmative for all the acute infections in which we have any real knowledge of this question. People must be made to realize that unnecessary exposure to any infection is a wrong to the public. It is not a question that affects themselves or their families alone; the question is whether they will help in whatever way they can to lessen the danger from these diseases to the whole public with which they come into contact.

It will again be objected that only the very intelligent will comprehend this; and that only the altruistic will accept this point of view, if they see it. I would again say that the numbers of the intelligent increase with the spread of knowledge, and that the numbers of the altruistic increase by example; and at least many persons adopt altruistic manners and methods through the force of example, even if they do not really enjoy altruism.

The next general principle of which I wish to speak as exemplifying what we should practice and preach is that we should take earnest care to acquaint those who come into contact with the sick, especially those who must be in attendance on them, with the particularly important ways in which they may acquire the especial disease at hand or may pass it on to others; and we should take vigilant care to see that they follow suggestions correctly and conscientiously. The latter is done less frequently than the former. Preventive suggestions are often given; but their effectiveness is a question of accuracy in detail, and anyone who takes the trouble to see in what manner the previously uninstructed carry out these measures after mere verbal instruction or hasty demonstration must appreciate the importance of taking some pains to see that things are done correctly. Even with trained hospital staffs, eternal vigilance is necessary in order to accomplish anything approaching accuracy in these matters; and with those who have previously had neither knowledge nor experience, some hasty directions, once given, will certainly do little good. Unfortunately, even the latter are not given with one-half the regularity that they should be. There seems, even yet, to be vastly less confidence in the value of prevention than in the treatment of the existing disease—in spite of the fact that everyone realizes that we have the power of saving many more lives through the former than through the latter.

As an illustration of the common laxity in this, I may mention that I went carefully into the histories of a large group of hospital cases of typhoid fever, and could not find that in 10 per cent. of them had any definite precautions been taken or suggested, in order to protect the other members of the household; and as a consequence I myself saw among this group of patients, in the course of two years, twelve instances in which from three to five members of families acquired typhoid fever, and almost certainly from the primary cases in their houses.

Only a few days ago I met with another example, when I found a small country community, ordinarily free from typhoid fever, greatly excited over the occurrence of five cases of this disease in one family. There were many speculations as to the source, but the trail of the serpent was plain in this instance. A son had come home sick with typhoid fever from a town constantly infected with that disease. The whole family had assisted at times in nursing him, and even the cook had hovered between the patient and the food that was eaten by the whole family. No instruction had been given at first as to the prevention of the spread of the infection; and the physician in attendance admitted that when the second case occurred and he realized that he was responsible, he deliberately said almost nothing about taking precautions, because he felt that insistence on regulations at that juncture would lead to his being blamed for not having established them earlier. The recording angel has against him, in this instance, one death, many months of illness *in toto* in that family, and very heavy expense to the survivors. This cheerful story is far from representing the great bulk of the profession; but it and the other instances mentioned do show that a great deal more care should be given to detailed instruction regarding preventive measures.

### IMPORTANCE OF PERSONAL PRECAUTIONS BY PHYSICIANS

Finally, we need to have more faith than many of us have in the real usefulness—the actual necessity, indeed—of adopting with our own persons all the reasonable precautions available against being ourselves carriers of infection. Many physicians seem to think it embarrassing to adopt precautions, and apparently consider that it will make the laity look on them as lacking in courage and fearful of acquiring the disease themselves. It is not courage, but foolhardiness,

to expose oneself needlessly to disease; but any who prefer to be foolhardy, may still put a check on themselves by reflecting that these precautions are really less for the physician's own good than for that of the public. A large number of medical men consider these precautions an unnecessary burden, because they can see little evidence that they or others who take but little precaution ever carry disease. This argument can not hold good at the present day. Which one of these men can say, in the light of our present knowledge of chronic infection-carriers, that he has not unconsciously played this rôle himself many times, and perhaps with gravely important results? We are approaching more closely every day to the position of the surgeon and the obstetrician, who are held—and who hold themselves—responsible, if they infect a patient through neglecting to avoid not only what they can clearly see is dangerous, but also what their reason tells them may be dangerous; and who make every effort to eliminate the inconspicuous and comparatively slight sources of infection. These men have had an advantage over medical practitioners in making progress in these matters, because their bad results openly and quickly follow the cause in most instances. Our errors are much more difficult to see and to overcome, because the bad results are somewhat more difficult to prove and even to suspect. Their existence and their importance, however, have now become beyond reasonable question.

One other highly important reason that the practitioner should exercise great care in the protection of his person against infection, in disinfecting exposed parts, and in all such measures, is that he serves as the chief example that the laity have to follow; and if he evidently regards these things as of too little moment to make it worth while to practice them himself, we can not expect the laity to have much faith in the things we teach them and desire them to practice.

The standpoint that I have described is one that requires more time and effort from the practitioner than does the ordinary method of dealing with infection. Nothing that is worth doing, however, can be done without effort. I am convinced that this is the way that those who wish to be in the vanguard must look on the matter, and I am equally sure that it will not be long before the intelligent public will be learning these things pretty generally, as they have already learned the important facts regarding tuberculosis and its prevention and treatment. They will then require of us in other diseases the same advanced attitude that they now know that skillful practitioners should have in tuberculosis. All this must add somewhat to the time and care devoted to infectious cases. I am fully aware that it means some extra tax on the practitioner's strength and patience, but I have touched on some of the matters that I have included, rather than leave them to one of the speakers announced to follow me, to whom they may in some ways seem more properly to belong, because if I preach, I am at least preaching what I myself have to practice, whereas if they alone say these things they might in their positions seem to be preaching only what they would have others practice.

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**Gonococcus in Puerperal Fever.**—F. B. Gurd, in *Montreal Medical Journal*, states that the gonococcus, either alone or as a primary infecting agent, plays a much more important rôle in the production of puerperal fever than is usually appreciated by most observers.

## THE AMOUNT OF INFECTION AND REASONABLE SANITARY STANDARDS *

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It is not generally appreciated that it requires a certain amount of infection to induce disease. While an acute specific disease is the result of a reaction between two living organisms, the host and the parasite, nevertheless, in the vast majority of instances, it requires a certain amount of the infecting principle on the one hand and a certain degree of susceptibility on the other hand, to produce the fever and other constitutional disturbances we call "the disease."

These two factors are more constant than is commonly supposed. All individuals of a given species usually have about the same susceptibility to a particular infection. Exceptional individuals may occasionally show wide variations, some being especially susceptible, others unusually resistant. These exceptions are rare enough and conspicuous enough to emphasize the rule. Thus, almost all persons are about equally susceptible to smallpox, whooping cough, measles, tetanus, mumps, dengue, yellow fever, plague, scarlet fever, and most of the acute specific diseases, provided certain amounts of the infectious principle are actually introduced into the organism, and provided, of course, that they have not had a prior attack, nor been treated by special means to raise their immunity, etc.

It is wonderful how uniformly the lower animals used for experimental purposes in the laboratory react to bacterial poisons. A given amount of tetanus or diphtheria toxins injected into guinea-pigs is followed by such constant results that these animals are a reliable and satisfactory measure of the strength and concentration of these poisons. So constantly and uniformly do the guinea-pigs react in this regard that they serve the purpose of an accurate analytical balance to measure the potency of these toxins and their antibodies.

Animals show also uniform susceptibility when inoculated with the living cultures. Thus, a twenty-four-hour-old culture of plague, glanders, anthrax, streptococcus, etc., may be depended on to produce surprisingly constant and uniform results when injected in definite quantities and under similar conditions into individuals of the same species.

On the other hand, it is well known in every bacteriological laboratory that, no matter how virulent the culture and no matter how susceptible the host, there must be a certain number of micro-organisms present to obtain a positive result. It has been estimated that it requires at least thirty tubercle bacilli in the peritoneal cavity of the guinea-pig to produce tuberculosis. Although many animals are very susceptible to plague, it requires a definite number of plague bacilli to produce the disease. The same is true of diphtheria, tetanus, anthrax, glanders, streptococci and other micro-organisms that are usually classed among the most virulent of the infections. It is especially true of the pyogenic cocci and the pathogenic group of coccobacilli.

On account of the power of bacteria to grow and multiply within the body, the initial amount introduced

* Read in the joint session of the Section on Pharmacology and Therapeutics and the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

necessary to bring about the disease can not be weighed and measured in the same sense that the lethal dose of chemical poisons can be determined. While no hard and fast rules can be laid down, it is evident to those who have had experience in this line of experimental work that very susceptible animals may successfully take care of small amounts of infection.

The same constancy does not hold good for all channels of infection. There is probably a wide variation in the amount of the infection necessary to produce disease, when the active principle is taken into the gastro-intestinal tract. Here many conflicting and complicating factors are introduced. Even here there is reason to believe that with such diseases as cholera and typhoid, it is the amount as well as the virulence of the infection that plays an important rôle. There is experimental evidence which teaches us that the ingestion of small amounts of tubercle bacilli by guinea-pigs appears harmless, whereas the ingestion of large amounts of the same culture causes generalized tuberculosis. When, however, micro-organisms are introduced directly into the tissues by any of the various methods commonly used in research work, we find consistent and unvarying results directly proportional to the amount of infection introduced.

Many factors influence the degree of infection, that is, the mildness or severity of a disease. This problem does not at present concern us, for we are now dealing with the fact whether an organism "takes" the disease after "exposure," that is, after the introduction of the virus into the tissues.

General principles teach the lesson that the occasional introduction of amounts of infection too small to induce disease serves a useful purpose by increasing resistance. All our notions of the production of antitoxins and of acquired active immunity are based on the repeated introduction of subminimal lethal doses of the specific virus into the organism. The higher degrees of immunity are induced by living bacteria; lesser degrees are produced by dead bacteria and by their products. There is, therefore, reason to believe that the chance introduction of a few pathogenic bacteria, which contaminate our food and drink, may serve a useful purpose in strengthening our resistance.

So much for the facts. The lesson to be drawn from them is evident. It is not possible, perhaps not always desirable, that our sanitary standards shall in practice reach the plane of laboratory perfection. In our ordinary walks of life we can not surround ourselves with the ideal asepsis reached in the surgical clinic. We must satisfy ourselves with reasonable cleanliness. For drinking purposes we do not need chemically pure water, sterile as that which has been thrice boiled in the test-tube. We do not demand germ-free milk. We ask only clean, fresh, non-infected milk. There must be a similar compromise between chemical and bacteriologic ideals and reasonable standards applying to our every-day food and drink. We know that a plant raised with great care in the greenhouse can not withstand the adverse conditions met by wild stock. It may be necessary for similar reasons to avoid raising a race of "hothouse" men and women. Dispersion and attenuation are the great natural forces which dilute and finally destroy infection. From a practical standpoint these agencies are useful adjuncts and should be reckoned with by the sanitarian, especially in establishing sanitary standards.

Applying these thoughts to a few individual cases, we find that time and experience have demonstrated the efficiency of slow sand filtration for polluted surface waters. While the effluent is not perfect or ideal, it furnishes a reasonably safe and clean water, and the method has been shown by long experience to be useful and trustworthy.

The milk supply of all large cities is a frequent vehicle of infection. By education, inspection and legal control we can improve the quality of this important but often dangerous article of diet. One safeguard, for the time being, however, lies in pasteurization. Pasteurization is not the ideal, but gives us a protection and must, therefore, be considered a reasonable standard.

With certain drugs and foods there can be no compromise; every known safeguard must be employed. Thus, antitoxic serum must be absolutely sterile and free from all contaminations. Vaccine virus must always be free from pathogenic micro-organisms, though it need not necessarily be "aseptic." Organo-therapeutic products and powerful active principles must be as pure and perfect as science knows how to make them. Drugs and chemicals should attain at least to pharmacopeial standards of potency and purity.

We shall always strive to attain perfection, but there is no reason why we should knowingly permit our fellow men to suffer by refusing to avail ourselves of the protection of reasonable, though imperfect, sanitary standards, even though they are not the end and aim of the future.

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## ABSTRACT OF DISCUSSION

### ON PAPERS BY DRS. EDSALL AND ROSENAU

DR. D. H. BERGEY, Philadelphia: Direct contact in the sick-room, while it is not the factor which leads to the production of widespread epidemics, is, nevertheless, a very important factor in the dissemination of diseases like typhoid fever, dysentery, pneumonia, meningitis, influenza and so on. We can limit this form of dissemination by educational means. The young recent graduate should fully understand his responsibility and disseminate his knowledge to his clientele. We probably have, in the past, either from lack of knowledge or from carelessness, neglected important steps that would have prevented the dissemination of the infectious agents. Provided we were always able to recognize all cases of communicable disease we should be able to control such disease. Unfortunately we encounter atypical cases far more frequently than typical cases. Certain well persons, the so-called carriers of disease, harbor the virulent organisms, and these, because we have not yet learned to recognize them, are probably of greater detriment to the community than are neglected fully developed cases. The work which has been accomplished in the English and German armies in regard to protection against typhoid fever, the protective value of the Haffkin fluids against cholera and against plague, lead us to hope that perhaps to some extent we may use similar measures to limit other infectious diseases. Dr. Rosenau has emphasized the fact that in infection we see the relation of the seed and soil, and while this is true under normal conditions it can not be true with regard to the human individual at all times or else we should see infection occurring far less frequently than it does. We are not all in the condition of the normal laboratory experimental animal. Our vitality is reduced from various causes and it may be that, instead of thirty organisms required to produce infection, all we may need is a single organism. For that reason the base of his argument will fall to a large extent. In regard to the obtaining of pure milk and pure water, we should rely on education in the principles enunciated by Dr. Edsall rather than the employment of the safeguards that Dr. Rosenau seemed to emphasize. For instance, to my mind it is far more desirable to produce a milk that is clean and free from disease-

producing bacteria than to safeguard the public health by the pasteurization of milk. If we can eradicate other diseases as we have eradicated malaria and yellow fever, through hygienic meaures which have been discovered, we shall not, as Dr. Rosenau feared, raise up a generation of hothouse individuals, but a race of individuals that we can protect and keep protected by eradicating the cause of these diseases. Finally, if we can so educate the laity and the profession that they will realize the importance of their duty with regard to diseases; so that they will realize that it is the atypical condition that needs more active control; that as long as an individual carries an infectious organism he is a danger to the community, no matter how long we may keep him in isolation; when we reach that point, then we can limit the incidence of communicable diseases.

DR. J. N. HURTY, Indianapolis, Ind.: At present I despair of doing anything through education with the older people. In my experience as Health Commissioner of Indiana I have spent a great deal of time meeting county commissioners and the controlling authorities of towns and of cities. I have failed to make much impression on them. Their minds are filled with something else than the protection of the public health, and some of them even inquire, "What is there in it for this man that he should give up his time and his efforts to protect our health?" Hence I believe that the only place really to educate the people in the protection of public and individual health is in the schools. All the labor that I have expended with the local governmental authorities has been wasted. In one of our counties a great deal of malaria prevailed. It was not surprising to find that the county contained many little lakes and ponds. On examining the mosquitoes we found anopheles present. That they were infected to some degree was certain. We appeared before the county commissioners, who, by the way, in our state are generally farmers, and told them that the malaria resulted from the presence of mosquitoes. I thought that a good impression had been made. These men had listened attentively; they looked from one to the other, and the chairman combed his heard and said: "Now do you believe all that stuff?" After all our efforts they put their opinion and conceit and ignorance against the scientists who had investigated the whole matter to the bottom. We can secure change only by educating the children. Go into the schoolroom and tell the same story to the children; tell them what malaria is and what it has done, how it acts, why it was not possible to build the Panama Canal without abolishing malaria, yellow fever, etc. Then, when these children grow up and have command, something will be done. It seems to me that a great deal of disease is acquired in school. The mental and physical man must be made in youth and not afterward. Hence the building of schoolhouses that impose ill health on children is very unpractical, irrational and extravagant. Yet that is going on everywhere. When children whose eyes have been injured by the bad lighting of the schoolroom, or whose spines have been twisted by bad seats, are exhibited to an assembly of older people, the latter are not impressed, and if advised to build sanitary schoolhouses in the name of economy and good business, will probably say at once: "Our taxes are high enough already." So I am driven to the conclusion that unless we can get hygiene taught in the schools, that science will make no progress.

While it is true that when resistance is very low, perhaps one infectious organism may suffice to produce disease, still if we live rationally that condition will rarely happen. I therefore believe that we can rely on the fact that, as Dr. Rosenau has said, a certain number of infecting bacteria are required in order to produce disease. This opens a splendid field; it points to what might be called the new hygiene.

DR. JOSEPH H. WHITE, New Orleans: I think that education possibly does more good to the general public than my friend Dr. Hurty thinks. I know that you have to reach the children. In our New Orleans campaign of education, when we wanted every one to understand how yellow fever was propagated, we talked repeatedly to the children in the public schools. We employed for that work some of the best ministers of the city, men who were accustomed to talk to children and who knew how to handle children better than we did. We accomplished an enormous amount of lasting good by this education. You can and must appeal to the adult's pocketbook in every emergency in which diseases is to be fought. There is a logical way to show to the adult population of the community that disease means financial loss, as it invariably, inevitably does. Every man, even the hayseed Dr. Hurty tells us of, though he may not have sense enough to take in sanitary science, has the sense to take in financial loss. Dr. Rosenau's statement that a certain amount of infection was necessary to the propagation of disease is undoubtedly true. It has certainly been borne out in my experience with disease. Otherwise, how would it be possible with the imperfect work to obtain results? None of us are capable of absolutely perfect work, and yet with work done within 75 per cent. to 90 per cent. of perfection you will get the results you seek. All of us have seen direct exposure to contagious diseases without result. What can that mean but what Dr. Rosenau has stated, that it takes a certain percentage of infective material to generate the disease, and that one micro-organism alone does not necessarily propagate disease? His paper is of vast encouragement, it seems to me, to sanitarians in their fight against disease in assuring them they have not an absolute certainty of infection in every place where the organism has been, but that there is some chance of escape, some weakening of the enemy's lines. Otherwise the fight would be hopeless throughout.

DR. H. M. BRACKEN, Minneapolis: Contact infection, so far as it relates to typhoid fever especially, is largely overlooked The history of the family one member of which came home ill with the disease and the other members became infected through the neglect of the attending physician, is far too common. Country typhoid fever is largely made up of contact cases, and the sooner this is generally recognized by the laity as well as by the profession the better it will be for all concerned. As to secondary or indirect infection, I think we have probably emphasized this too much in the past. We should place emphasis on the fact that we are to avoid the possibility of such infection rather than to attempt to confine such infection by quarantine. We should teach people how the infection is transmitted and thus prevent their carrying the disease to others. There are two methods used in the effort to educate the public along sanitary lines; one by talks, which do not accomplish much, and the other by practical demonstrations. I do not know how this educational work can be carried on better than by school inspection. If you try to teach a child how infection takes place your efforts may prove of little avail, for the child forgets. If the child is constantly seeing methods employed in school inspection he soon learns that certain diseases are supposed to be transmitted in certain ways, and when he grows up he remembers these things. I look for the time to come when school inspection will be recognized as of more importance in the control of infectious disease than quarantine.

DR. SAMUEL MCC. HAMILL, Philadelphia: The present status of the milk question makes the encouragement of commercial pasteurization questionable; first, because the methods used are wholly unreliable, and, second, because it tends to discourage the rapidly spreading demand for clean milk which has resulted from educating the public. Unfortunately, in the present condition of the market milks we are forced to recommend some form of pasteurization. I am inclined to believe that by the home pasteurization of milk we shall accomplish as much for the protection of the public and do less harm to the clean milk cause than by pasteurization by the present commercial methods. It seems to me that as long as the practitioners of medicine and the departments of health are antagonistic to each other we shall accomplish very little. I happen to come from a city in which such conditions exist. The result is that we accomplish nothing of value. There is no cooperation. The recommendations of the Board of Health encounter antagonism on the part of the medical men and conversely everything proposed by the medical men is antagonized by the Board of Health. Both sides are at fault, but at present I think that the greater blame rests on the members of the profession. Physicians should adopt measures to prevent the transmission of disease through the medium of their own persons. Even now there are many who scoff at the

use of a gown. It is not a matter of much difficulty to provide oneself with and wear protecting uniforms, and I can assure any man that he will gain and not lose in the respect in which the public will hold him and that he will be able to go from case to case with a much clearer conscience.

DR. S. T. ARMSTRONG, New York: Like the last speaker, I question Dr. Rosenau's position on pasteurization. New York City has had an active campaign in favor of pasteurization by certain well-intentioned private individuals, who were able to bring to their aid important advertising interests that made the daily press exploit the subject. The Board of Health has felt that pasteurization would limit and neutralize the work it was doing in the inauguration of proper cleanliness of dairies, so that pasteurization would become a detail for the consumer rather than the purveyor. In the hospitals with which I am connected in New York City I find it possible to secure very good milk by paying for it; it is simply a question of dollars and cents. At the present time the dairymen can not give clean potable milk for the price they receive from the purveyors. If milk with a low bacteria content is to be supplied, methods must be used in the dairy that will necessarily increase production cost; if cleanliness in barns, in cattle, in sterilization of utensils, in uniforms for employes, is demanded more must be paid for the milk. In the public institutions of New York City, to secure milk that will contain a bacterial content of less than 100,000 colonies during May, June, July and August, and less than 60,000 colonies during the other months of the year, we pay 6¾ cents for the summer and fall months and 7 cents during the late fall, winter and first spring months. Hospital officials have told me that if they had to pay such a price for milk it would increase the cost of supplies to the institution by many thousands of dollars a year. They were told that this was undoubtedly true; that they were giving their patients a culture of bacteria while I was trying to give them a food. The municipality should try to get for its citizens a food supply. Our best bacteriologists have informed us that pasteurization improves the milk only temporarily, and that shortly after that process it is a better medium than before; while pediatrists advise us that the nutritive value of such milk is lessened. The weight of evidence among those best qualified to speak is that commercial pasteurization does not meet the situation, and is not a prophylactic measure to restrict communicable diseases. Even in a hospital a member of the house staff will find a case of diphtheria developing in his ward, report it to the board of health, have the patient removed, and do nothing towards the immunization of patients in the vicinity of the one affected, and nothing for the nurse. It was necessary in the municipal hospitals of New York to rule that on the development of a case of diphtheria in a ward all patients and persons exposed were to be immunized by a protective inoculation of diphtheria serum. Hospital administration has a problem that confronts the general practitioner in a patient who has no clinical symptom of diphtheria, although the diphtheria organism is present. The board of health has no special interest in such cases, as, obviously, there is not sufficient accommodation in hospitals for communicable diseases to provide for the patients. The hospital must meet the condition, as far as the individual is concerned, by immunization. The patient should be separated from others in the vicinity by screens. As far as measles and scarlet fever are concerned, though we can not immunize for these, it is hoped that some measures will develop in the future that will afford protection. Whooping cough and chicken-pox are not regarded by the New York Board of Health as diseases to be cared for in hospitals for contagious diseases; consequently, provision must be made for such patients in general hospitals where there must be isolation rooms, as such an institution can take no chance in the matter, whatever be the attitude of the board of health. A physician in private practice would have to follow similar measures. Our tuberculosis patients are all isolated in wards for that disease alone. We have not isolated typhoid fever patients, although the matter has been under advisement.

DR. SENECA EGBERT, Philadelphia, Pa.: I am heartily in accord with what Dr. Hurty and Dr. White have said in regard to the adult. We can appeal directly to the adult, and, as Dr. White has indicated, especially through the pocketbook. I was startled the other day by some figures I saw in the mortality statistics of the U. S. Census Bureau for 1906. In the year mentioned we had over one thousand deaths from typhoid in our city, a death rate of about 70 to 100,000, three times as much as any city with a decent water supply should have, and this in spite of the fact that there is now a good water supply to certain sections of the city with a consequently lower mortality rate from typhoid fever in those sections. The bad water and other agencies causing typhoid practically means a death loss of $5,000,000 and over, an amount that will probably more than pay the interest and maintenance of the new filtering system now being constructed. When we can show to people the immense loss incident to preventable illness and death we shall get results in a sanitary achievement. I do not believe that you can make Butler, Pa., believe now that it is worth while to spend $200,000 for another typhoid epidemic. So far as altruism is concerned, it is not going to cut much figure with the ordinary adult, but if you make him see he is taxed more and that the annual expenses brought on him are increased by these epidemic diseases, he will give some thought to their causes and prevention. We must do a great part of our education in the school. I have remarked before to this Section that the census of 1900 shows that 30 per cent. of the population of this country is under fourteen years of age and almost 50 per cent. under twenty-four. That means that within ten years we can teach directly 50 per cent. of the population. Another ten years gives us 70 per cent. There is an opportunity to do as Dr. White has done in New Orleans, teach the children by word of mouth, by pictures, books and by practical experimental work in the study of the mosquito and the fly, etc. It is easy to catch a common house-fly, to have it walk over a dish of sterilized culture medium and to show two or three days afterward the tracks which the fly made and what they may indicate. A certain amount of the curriculum and of time should be devoted to this kind of training. School children are learning botany and zoology now in the schools. It would be just as easy to have them take up the study of prevention of disease. I believe the daily influence of school inspection by the medical examiner also has a tremendous influence in an educational way, and I venture to say that in Philadelphia there are many school children who are coming under the visitation of the school inspector and the visiting nurse who already know more about hygiene and sanitation than their parents know or ever will know. If we make people appreciate that, although it is practically impossible with a consumptive in the house, for instance, to get absolute disinfection, a relative and practical safety from infection can be achieved, I think it will encourage people. They read and constantly hear that many millions of bacteria are cast off by the consumptive in the day, so that it would seem a hopeless task to attempt to protect themselves against infection. If they realize that it takes a good many bacteria to infect them, as it does, they will have some hope of carrying on the work of disinfection. Every physician should have an abundant supply of circulars on infectious diseases at hand, and when he gets a case he should give a circular to the patient, for this tells him more than the average physician has time to tell him by word of mouth. If that can not be done in every state the physician should have a little slip with instructions regarding the case of infectious diseases and with instructions regarding general disinfection. The whole thing is so easy and practical that it is a wonder that it has not been more thoroughly and extensively practiced by the doctors than it has been. I think that preaching this question of prophylaxis, day in and out, in season and out, will eventually make the public realize the enormous economic loss due to preventable diseases.

DR. HELEN C. PUTNAM, Providence, R. I.: I have been in a number of cities recently visiting more than a hundred public schools where they have medical inspection. Medical inspection is on its trial both with physicians who are watching for results and with teachers who are watching with hope and with some criticism. Within six months I have been in a city where the medical inspector, when he wanted to examine a child's throat drew his pencil out of his pocket to depress the tongue,

and when he examined another throat used the same pencil for the same purpose. I was in another school when a medical inspector wanted to see the condition of adenoids. He examined lightly with the finger on the back of the throat, wiped his finger on his handkerchief and within half an hour examined another throat with the finger, not having washed it meanwhile. Some teachers are sufficiently alive to hygiene to speak of this and of other unfortunate occurrences. This kind of medical inspection is doing harm. This bad work means a great deal, and it is the function of this organization to consider training of medical inspectors. We need, perhaps, training individual physicians in the matter of conscience; but we need very greatly the degree of Doctor of Public Health which shall be given for the satisfactory completion of a course including proper training in the inspection of schools.

DR. ALEXANDER S. VON MANSFELDE, Ashland, Neb.: A lesson was taught me on the second day that I was the first health officer of the city of Lincoln, Neb. On the first day I quarantined a man for smallpox and on the second day the man was on the principal street of the town exhibiting himself. I solved the question in this fashion: "You are a deputy sheriff of the county, I believe." "I am." "It is my opinion, sir, that the first lesson an officer should learn is to know how to obey the law himself. When you go home there will be a man with a shotgun watching your door and when you leave it in spite of that shotgun you and your physician will have plenty of time during your lifetime to pick the shot out of your skin and you will have learned well, sir, the lesson which I wish to inculcate in you." He went home and stayed there, you may be sure. I had no more trouble. There is an abundance of instruction on the care of contagious and infectious diseases. What we lack is the execution. I think that medical men should be examined for health officers not as to their brain capacity alone but as to the strength of their backbone. I fully believe in instruction of children in the schools; but how are we taking care of them? How are we as health officers looking out for the coming generation? Don't you know that over this great country of yours measles and whooping cough are not quarantined? Who on this floor but knows that the best breeding-ground for the flora of tuberculosis is the hotbed prepared by whooping cough and measles? You are sowing the seed broadcast, so that your followers in medicine will have a plentiful crop of tuberculosis to take care of as we have now. Why do you do it, I ask you? I have just passed in my city through an epidemic of variola. The moment there is suspicion of any one having come in contact with variola, however remote, he is put into quarantine and he and his family are to be vaccinated. I do not know whether it is fortunate or not, but the people exposed are usually not very plentifully supplied with means. I say: "If you will not be vaccinated you must provide for yourselves. If you will be vaccinated the city will take care of you." It works like a charm every time. The authorities and the people of my city have a standing invitation to ask for my resignation when they will not permit me to teach these lessons. They have not asked me for my resignation the last thirty years.

DR. FERD. C. VALENTINE, New York: Before this learned assemblage it is unnecessary to emphasize the ravages of venereal diseases. All know that 80 per cent. of the women who die of diseases of the reproductive organs die of gonorrhea innocently contracted. Most infections are acquired from husbands who thought themselves cured before marriage. What are the prophylactics thus far offered? Principally education, prayer, periodical examination, suppression of prostitution and personal prophylaxis. Most men when infected with venereal diseases will deplore their ignorance of the dangers of immorality. At other times these dangers do not interest them. Were mankind differently constituted the work of the American Society of Sanitary and Moral Prophylaxis would have had great results. General education, however, does not always make men receptive to instruction on venereal diseases. That such instruction does not reach the educated and intellectual classes is evident in the consultant's waiting room. I would not on this account deprive them of the education. Its results from the nature of things can come only with persistent work after several generations. Prayer as a safeguard has been fervently advocated by my friend, Howard A. Kelly, of Johns Hopkins University, as the only positive prophylactic. Relatively few, however, have the devotional trend, and but few of these are able to find in prayer a protection against the sexual impulse. The third means of prophylaxis that has been much advocated is in the periodical examination of prostitutes. It has proved a failure in the countries in which it has been practised for several centuries. Moreover, the practical benefits must ever be limited to the prostitutes, for certificates of sexual health tend to increase vice by the specious safeguard it pretends to give. Manifestly, it can not in any way exercise influence on the detriment disseminated by clandestine prostitutes. Suppression of prostitution by the strong arm of the law is likely to be even less effective than are the laws against murder and crimes generally. Personal prophylaxis would strike the majority of moral people as abetting lechery. On the other hand, an attempt to advise a man to use protective injections and washings must contend, among other things, with that peculiar mental bent which makes men averse to spending a penny for prevention and willing to spend dollars for cure. These facts, besides many others, which could be cited, do not justify abandoning the infractor of morals to his fate. To do so would be to abondon his wife and children, often to lives which are worse than death. Then arises the practitioner's best work, so to influence each of his patients that before considering marriage he will be in such condition as not to ruin in body and mind the health of the woman who entrusts herself, mentally and physically to him. The manner in which an examination to that end is to be conducted is the subject of a paper to be presented before this Section this afternoon.

DR. DENSLOW LEWIS, Chicago: I think it safe to say that one great means of prevention is the enforcement of publicity. Those who have followed up the work of the Section on Hygiene for several years past, those who have followed the trend of opinion regarding venereal prophylaxis, will remember that it is less than twenty years ago since the last speaker, Dr. F. C. Valentine, endeavored to refer to gonorrhea and was told: "This is a Christian country and a Christian association, and no such vile thing shall ever be brought before the Christian American Medical Association." At the Boston meeting, when I had the honor to serve as Chairman of the Section on Hygiene, Dr. Prince A. Morrow introduced a resolution to the effect that continence was not injurious to health. The resolution was referred to a committee which has now become the Board of Public Instruction on Medical Subjects. Last year, when serving as the delegate of the Section on Hygiene, I endeavored to get some action on Dr. Morrow's resolution, but it was finally tabled. In other words, the House of Delegates refused to go on record as saying that continence is not injurious to health. This being the case, I think that we should take some firm stand and assert that it is imperative to disseminate a knowledge of the truth. In view of the fact that the Board of Public Instruction on Medical Subjects now hesitates to consider gynecologic subjects and matters pertaining to sexual questions, because this board says in its report, submitted yesterday, that these can best be taken up through circular letters to physicians or by carefully prepared monographs by some first-class authority in the medical profession, it becomes necessary, it seems to me, to insist that every medical man should now come forward and advocate an immediate dissemination of the knowledge we possess. No first-class authority is needed to tell the truth about contagion. No hesitation is justifiable in withholding from the young a knowledge of the truth which may prevent disease and disgrace.

DR. S. A. KNOPF, New York City: One of the preceding speakers prayed that the time might come when all individuals who carry pathogenic micro-organisms in them should be isolated. That would mean the isolation of a good many of us who have the pneumococcus normally or carry the grip bacillus at the time of a grip epidemic. I think it would be wise if that prayer would be limited for the time being so as to include typhoid fever and the more dangerous contagious diseases and not all communicable diseases. Of course, the compulsory hospitalization of cases of measles would be the ideal, but in some communities at epidemic times it would

mean a good deal of expense or hardship for the time being. I have had a little experience in educating the public—children and adults—and while I agree heartily with Dr. Hurty on the importance of educating the children I believe also in educating the adult. In New York, thanks to the efforts of Dr. Herman M. Biggs, we have educated the people, and the result has been a reduction of the mortality of tuberculosis of well nigh 40 per cent. That means a good deal. We are also trying to educate the children; we are getting out a catechism on tuberculosis, and we try to educate teachers in the schools. A few practical things are not taught or not taught often enough, which should be mentioned again and again. Grip, tuberculosis and pneumonia, I firmly believe are propagated just as frequently through drop infection as by any other means. I mean by "drop infection" the expulsion of microorganisms through the so-called "dry cough." There is no such thing as a "dry cough." A mirror held before the mouth will reveal that droplets are expelled during the cough. These droplets may contain the bacilli. So one of the first things to teach people who cough, no matter where, is always to hold the hand or handkerchief before the mouth. I am an enthusiast in all things pertaining to bacteriology, serums and vaccines, but we must still always pay attention to overcoming the physiologic poverty of our school children. Teach children to be clean, to breathe deeply often and to love fresh pure air. Tell them to teach this love for cleanliness and fresh air to their parents. I believe we should have no public school without shower baths and a swimming tank. It was my sad experience as attending physician to North Brothers Island to witness, on the day of the Slocum disaster, 400 little bodies taken from the water only a short distance from our island. Three-fourths of these children were drowned because they did not know how to swim. Is it not as important to teach swimming to our boys and girls in the public schools as to the pupils in high schools and colleges?

COL. WILLIAM C. GORGAS, Ancon, Canal Zone: My experience with transmissible diseases, principally in the last fifteen years, teaches me to look on the sick man as the great transmitter of diseases from place to place. We can see now that it would be impossible for fomites to play much part. My ideas on this subject have been much affected by the radical way in which my views have been changed with regard to malaria and yellow fever. Fifteen years ago there was nothing more certain than that yellow fever was a disease transmitted principally by fomites. I had been educated in that belief, and had worked under that idea. About this time other mosquito-borne diseases were being discussed. I was thrown a great deal with Dr. Finlay, who had been maintaining the theory that yellow fever was transmitted by the mosquito. He then defended his position entirely by argument, but by most ingenious and plausible arguments based on the facts then known connected with the disease. I think, in general, that men who have worked a great deal in health matters, have charge of quarantinable diseases and have been accustomed to executive work, are inclined to be intolerant and to look on the accepted view as the only possible thing. This was our case. Dr. Carter and I were for two or three years with Dr. Finlay on a board whose duties it was to see all cases of yellow fever reported in Havana. I am afraid that we were rather inclined to be short with Dr. Finlay and to treat his idea with scant respect. From our plane of superior knowledge we were much inclined to pull his theory to pieces in a very unmerciful manner. After seeing the experiments on human beings, however, I was obliged at once to accept the theory that yellow fever could be transmitted by the mosquito, and after that I was rapidly forced to believe that, in nature, it was transmitted only in this way. I then had, of course, to drop all belief in the possibility of its transmission through fomites. This radical change in belief naturally made a strong impression on me. As time has gone on I have endeavored to follow up this subject, and I now believe that yellow fever is transmitted only by a sick person going into a community and infecting mosquitoes locally. The only other way of transmitting the disease from place to place would be by carrying infected mosquitoes from one place to another. Infected mosquitoes can be brought from one place to another in a test-tube, or a ship can get infected mosquitoes aboard at one port and carry them to another port, but I believe that actually this is very rare. This experience has affected my views with regard to malaria and other infectious diseases, and I am inclined now to look on the sick person as being the principal means of the transmission of these diseases and to believe that fomites play a very small part in the matter.

DR. DAVID L. EDSALL, Philadelphia: I am much surprised to hear Drs. Egbert and Hurty speak as they did. The education of children is an extremely valuable and important measure, but not a perfect method. One reason is that much of the teaching of physiology and hygiene in the public school is very silly. Teachers must be educated before they can teach children properly. In the second place, a child forgets later on much that he learned in school and needs reiterated instruction throughout his whole early adult life in order to keep him in the right way. I think that we can do a great deal with the adults. The health officers and hygienists are at a considerable disadvantage in dealing with adults, whereas the general practitioner deals with them personally and can accomplish a great deal with many persons, though not with the most ignorant and obstinate. Many can be reached through altruism. We should as far as possible prevent communication with typhoid patients in order to limit the number of infection carriers whom we can't get at.

DR. M. J. ROSENAU, Washington, D. C.: In no sense do I underestimate the importance of obeying the laws of health, of improving the bodily tone and strengthening the vital forces, which are among our chief allies in the battle against infection. Certainly, my conclusions can not be understood as a plea to disregard the aggressive measures which sanitarians must use in their fight against the communicable diseases, and by no means can they be misunderstood as an excuse for carelessness. I fully appreciate the great importance and value of educating the public in public health matters. These matters were not mentioned specifically in my short paper, but that does not mean that I think they should be neglected. I confined myself simply to one single thought, and that is that as a rule it requires a certain amount of infection to produce disease. Tuberculosis should not be taken as an example to illustrate this point, for the reason that the balance between tubercle infection and health is so delicately adjusted that a slight lowering of the vital forces is frequently sufficient to be the determining factor; but in a large majority of diseases, such as measles, smallpox, whooping cough, scarlet fever, yellow fever and many others, an individual may fall victim to the infection, no matter how great his bodily vigor may be, I simply endeavored to make plain certain facts well known in bacteriology. These facts explain certain phenomena frequently observed by sanitarians. The lesson to be drawn is that, by adopting reasonable sanitary standards, we can save life and prevent much sickness while we are waiting for the millenium. There can be no conflict between the admirable views set forth in Dr. Edsall's paper and what I have said in regard to the relation of the amount of infection to reasonable sanitary standards.

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## *Clinical Notes*

### PRACTICAL MICROMETRY IN THE CLINICAL LABORATORY

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PHILADELPHIA

While the medical student of to-day is made thoroughly familiar with the appearance of every microscopic structure, animal, vegetable or mineral, which is of practical importance to him either from the standpoint of diagnosis or otherwise, he is apt to have very little capability to appreciate microscopic magnitudes. We train him to search for various organized structures and to discriminate between objects which are character-

istic of some diseased condition and unimportant objects, such as extraneous matter and artifacts, but we teach him very little of the size and nothing of the determination of the size of these microscopic structures. The result of this condition of affairs is seen in the case of objects which differ in size, but resemble each other to a certain extent in shape and general appearance. One is sometimes asked to confirm a diagnosis of *Strongyloides stercoralis* or some other intestinal parasite when the vegetable cells which have been mistaken for entozoan eggs are larger than any fluke-worm egg. Even an approximate determination of size would prevent such mistakes as this.

I have endeavored to devise a means of microscopic measurement which shall be simple, convenient, inexpensive and as accurate as is necessary for the present purpose, with the hope that it will be a definite help to the medical student in a direction in which aid is needed but is difficult to obtain.

The most accurate methods of micrometry, such as the photomicrographic method and the use of a screw micrometer eye-piece, are out of the question here, as is also the use of the camera lucida. The eye-piece micrometer with a fixed scale allows accurate measurements after being calibrated for the microscope, draw-tube reading, nose-piece and objective used, and ought to be a more popular accessory than it is at present. It could be supplied in medical schools along with the microscope which is furnished for the student's use, and would increase the amount invested in the outfit by only about 5 per cent. It does not need to be alternated with an ordinary eye-piece, but may be left permanently in the microscope, as the eye soon learns to ignore the scale when not in use as easily as it overlooks stray air-bubbles in the preparation examined.

A method which requires no additional attachments is the use of an ordinary graduated ruler laid on the table and viewed with one eye while the other observes the microscopic image. The two fields of vision are mentally superimposed, the ruler apparently lying across the image of the object. A scale with the different inches divided into sixths, eighths, tenths, twelfths, sixteenths and twentieths is said to be very convenient.[1] A previous calibration of the ruler by comparison with a stage micrometer, a microscopic scale of hundredths of a millimeter; or a knowledge of the magnifying power of the optical combination used is all that is necessary for making measurements. Aside from the difficulty in placing the ruler close enough to the optical axis of the microscope, however, many persons also find it difficult to keep the convergence of the eyes constant under such conditions, the result being that the two fields of vision shift laterally across each other in an irregular manner.

The method of micrometry which I propose consists essentially in the addition to the microscopic preparation of some insoluble substance which occurs in particles of comparatively uniform dimensions and of suitable size, a width of 25 to 50 microns being preferable for general use.

A large number of objects which suggest themselves for this purpose prove to be unsuitable when tried. Cotton fibers are always at hand, but vary too much in diameter. Starch grains are easily procured and by selecting the variety of starch any one of a considerable range of sizes may be obtained. Unfortunately, the different grains of any given kind of starch show decided variations in diameter. Many objects, such as tapeworm eggs, are of very uniform size, but either are difficult to procure in sufficient quantities or are substances likely to be present in the microscopic preparations examined. A suitable substance must be one which can always be recognized as something extraneous. Yeast cells, lepidoptera scales, molds, diatoms, confervæ, etc., must be rejected for similar reasons.

Two substances which appear more promising are the pharmacopeial lupulin and lycopodium. Each has grains of about the right size, and a perfectly characteristic appearance which could not possibly be mistaken for anything else. Lupulin grains vary in both size and shape after being kept for some time, but the lycopodium grains do not seem to deteriorate on keeping. They are practically uniform in size and are roughly spherical with a tendency to a four-sided flattening into a rounded tetrahedron. The material may be obtained from any drug store and is not apt to be adulterated with other substances. In examining a considerable number of specimens purchased in different localities, I have never seen a grain of pine pollen or any other foreign matter.

In order to obtain a quantitative determination of the variation in size of lycopodium granules, measurements were made, using an eye-piece micrometer, both of different specimens of lycopodium as purchased, and of the same specimen after being kept under different conditions. The figures given here are the last six sets of a series of measurements and represent three different samples, one of them as purchased, the same after being exposed to the air in a thin layer for four months, and after being carried in the pocket in a capsule for four months and for eight months.

32.8 plus or minus .18 micromillimeters.
33.5 plus or minus .21 micromillimeters.
33.6 plus or minus .21 micromillimeters.
32.9 plus or minus .22 micromillimeters.
32.8 plus or minus .23 micromillimeters.
33.4 plus or minus .27 micromillimeters.

The first number in each case is the average of twenty-five measurements of lycopodium grains spread on a glass slide by the method explained below and chosen in such a manner as to avoid any source of "systematic error" which might produce misleading results. The number following the plus-minus sign is the quantity which is known by the rather misleading name of the "probable error," and represents limits in excess and in defect of the average which have been so taken that the probability of another determination falling between these limits is just equal to the probability of its falling beyond them. It indicates the way the individual measurements "scatter" or cluster around the average. The figures given are maximum diameters of a maximum optical section of the lycopodium grain. This is usually from one of the apices of the tetrahedron to the middle of the opposite convex surface. While they undoubtedly show that the variations under different conditions are the result not merely of accidental variations, but of true differences in the size of the grains, they also show that for the present purpose the diameter of the lycopodium grain may be considered as being uniformly one-thirtieth of a millimeter or thirty microns. A few grains are sometimes seen which are perceptibly larger or smaller than the majority, but these are relatively infrequent and are easily detected when several grains are seen in the same field.

1. Hayden, Thomas: A Short Notice of a Ready and Simple Mode of Measuring Microscopic Objects, Dublin Quart. Jour. Med. Sc., 1855, xix, 119.

For practical use a few grains are scattered over the preparation to be examined, and any object of interest is compared with a lycopodium grain in its vicinity, an object half as wide measuring 15 microns, one twice as wide, 60 microns, etc. With a little practice one can easily determine whether an object is, for example, nearer 20 microns than 25 microns, or *vice versa*. The lycopodium grains are not always wetted with aqueous fluid, so that in the preparation they are sometimes seen surrounded by a layer of air, but the inconvenience of moistening them with alcohol or otherwise and keeping them in some fluid is not counterbalanced by the slight advantage of having them free from air bubbles.

The dry lycopodium is conveniently kept in a hard gelatin capsule, which is easily carried in the pocket so as to be always at hand when needed. The size known as the Number 1 or five-grain capsule is large enough to be handled without difficulty and not so large as to be liable to accidental crushing. If each capsule is filled about one-third full a hundred capsules will require only two or three drams of lycopodium and the cost of both is negligible.

In furnishing these capsules to a class of students in clinical microscopy, it will be necessary to give a few directions as to the best method of using them. Any attempt at pouring or shaking out a little lycopodium will not only use up an unnecessarily large amount of the material, but will deposit the grains in large, opaque masses in a very irregular manner. The "cap" of the gelatin capsule should be removed and its edge scraped against the edge of the other half of the capsule as they are held just over the microscopic preparation. In this way the thin layer of lycopodium adhering to the inner surface of the cap is shaken out as a fine dust-cloud which does not settle rapidly, but by gentle blowing may be easily sent against the moist preparation and distributed very uniformly over it.

The results of this method of making measurements are very striking. Students who have previously been unable to give even an approximate estimate of the size of an ordinary tube-cast, an echinococcus hooklet, a tapeworm egg, etc., quickly acquire a definite conception of the magnitude of such objects, and it is a very different kind of knowledge from that which results from the mere memorizing of a row of figures.

3752 Powelton Avenue.

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## MUSTARD PACKS IN TREATMENT OF CAPILLARY BRONCHITIS IN CHILDREN

A. A. HERZFELD, M.D.
NEW YORK

Mustard has been in use as a counter-irritant for many centuries, but it is astonishing how few physicians are acquainted with its excellent properties as a counter-irritant in the treatment of capillary bronchitis and bronchopneumonia in infants and children.

Most doctors content themselves with the use of some patented, odoriferous kaolin or clay paste. These patented pastes have many disadvantages. In the first place, they hinder by their weight free respiratory movement; second, their action is entirely insufficient; third, they may cause a severe dermatitis by blocking up the openings of the sebaceous glands. I am acquainted with one case in which an erysipelas was directly traced to the application of one of these patented pastes.

The value of counter-irritants in the treatment of capillary bronchitis in children has been amply demonstrated. Mustard is one of the simplest and most active of counter-irritants and one to whose efficacy in this condition there is ample testimony. It is especially indicated when such dangerous symptoms as severe dyspnea, asphyxia, cyanosis and great general prostration arise. Up to the present time, when used for this purpose, it has been mostly applied in the form of a paste or a mustard water (Heubner). For the past thirteen years I have been using a method of my own device. Both my colleagues and myself are so convinced of its undoubted efficacy, and the method possesses so many advantages over other methods of counter-irritation, that I feel constrained to publish this method here.

Two hundred and fifty c.c. (half a pint) of water and 250 c.c. of alcohol are mixed in a large bowl; to this is added from 25 to 50 c.c. (1 to 2 fluidounces), depending on the severity of the case, of freshly-prepared spirit of mustard. The spirit of mustard is prepared according to the German Pharmacopeia (the volatile oil is the active principle of mustard):

| | |
|---|---|
| Oil of mustard | 1 part |
| Pure alcohol | 49 parts |

A large piece of flannel is well moistened with the mixture and the body of the child wrapped up from the neck to the knees. This moistened flannel is then enveloped in a dry sheet and the child is left in this pack until the skin is bright red, which point is usually reached at the end of fifteen to thirty minutes. The child is then taken out and wrapped and left for another half-hour in a pack moistened with a mixture containing one part of alcohol and two parts of water. At the end of this time the child is wrapped up in a dry sheet. In most cases one well-applied mustard pack will suffice to bring about a permanent improvement. Relapses, however, are of frequent occurrence, whereupon packs are renewed. It is not advisable to apply the pack more than once in twenty-four hours unless the indication is unavoidable. It is advisable that the physician apply the first pack himself, not only to determine the strength to be applied, but also for purposes of instruction to the parents or nurses. The effects of this mustard pack on the child are truly striking. The cyanosis disappears promptly, the dyspnea is relieved, the pulse improves considerably and the mental condition of the patient is notably brighter. The transition from a state bordering on collapse and one which in some instances may even be termed moribund, to a condition in which the clinical picture becomes immediately more roseate, is not, I venture to say, effected so rapidly and satisfactorily by any other therapeutic weapon at our command. Heubner of Berlin explained the beneficial effect of the application of mustard in these severe cases of capillary bronchitis as follows:

The lungs of children who have capillary bronchitis and bronchopneumonia show a very pronounced hyperemia and a dilatation of the blood vessels in the walls of the bronchi. The bronchial tubes themselves are entirely stopped up with secretion. The skin of these patients presents an extreme pallor. The hyperemia of the respiratory tract may be termed an inflammatory stasis of the blood in the lungs. The hyperemia caused by the counter-irritation of the mustard on the skin, therefore, opens up a new territory for the circulation of

the blood. Hence, the quantity of circulating blood in the lungs is diminished in a given space of time, the work of the heart is reduced and the rapidity of the circulation of the blood in the lungs increased.

SUMMARY

The advantages of my method of applying the mustard pack in capillary bronchitis and bronchopneumonia of children are as follows:

1. It is surprisingly rapid in effect.
2. Its light weight does not materially hinder respiratory movement.
3. It can be applied without removing the enfeebled patient from the bed.
4. It is inexpensive.
5. It is clean.

224 West Twenty-Fourth Street.

## REMEDY FOR THE PAIN OF INSECT BITES

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The bites of mosquitoes and various gnats, the stings of wasps, bees, etc., have often produced a considerable amount of pain and discomfort and even death has resulted as a consequence of such stings in human beings.

No effective remedy, as far as I am aware, has been recommended for the alleviation of the suffering caused by these insects. The flesh about mosquito-bites if irritated or rubbed very often suppurates and a considerable slough comes away.

For some time past I have used iodin crystals in saponated petrolatum, 30 to 40 grains to an ounce. A few drops of this is rubbed over a mosquito-bite with magical effects. I have also rubbed it over parts stung by wasps of various sorts and sizes. The pain of the sting was very quickly relieved. It seems to me it might be used, in addition to other measures, in cases in which one was bitten by a viper.

# Therapeutics

## PROPRIETARY PREPARATIONS VERSUS THE UNITED STATES PHARMACOPEIA AND NATIONAL FORMULARY PREPARATIONS

The following are criticisms of the exclusive use of the United States Pharmacopeia and National Formulary preparations:

1. If physicians were to confine themselves to these preparations, useful new drugs would never become known, and the medical world and its patients would thus be deprived of valuable remedies.
2. Many of the Pharmacopeia and National Formulary preparations are imperfect in their make-up, and are poor imitations of proprietary preparations.
3. Some products must be ordered by proprietary names, and hence consistency is broken in favor of certain firms.

There is no question that there are a few valuable drugs (not mixtures) that have no recognition in the Pharmacopeia and National Formulary. To avoid this omission, once in five, or perhaps better once in three years, there should be issued an addendum to the Pharmacopeia which should contain drugs found valuable by investigations made by the Committee on Revision of the Pharmacopeia. Drugs so recommended would be considered official and would be incorporated in the next Pharmacopeia. At present the Council on Pharmacy and Chemistry is investigating new drugs and putting its honest stamp of approval or disapproval on each. The value of such investigation and such recommendation is inestimable to the practicing physician.

There is no excuse for a large number of products produced by different firms which differ but slightly, if at all, in their chemical action or in molecular constituency. It would be obviously impossible to recognize all these drugs in the Pharmacopeia. Also if a physician tries several drugs or preparations which differ from each other *in name only,* and then, influenced by the ever-varying behavior of the same drugs with different individuals, reports that one preparation is far ahead, in its favorable action, of all the others, it can readily be seen that such medical reports are grossly deceptive, sometimes prejudiced, and often unwittingly absolutely untrue. This is the reason that one physician declares such and such a silver preparation, for instance, to be far better than all others, a second prefers another preparation of silver, and a third still another. Chemical analysis will show that these preparations are practically alike, and careful clinical investigations, *long enough continued,* will show that each of these preparations acts similarly to the others, provided that the dose of the active ingredient is the same. Likewise, the various iodin combinations which are said "to give no symptoms of iodism" are shown by chemical analyses to contain such small amounts of iodin that they could not give undesirable symptoms. In other words, if as small a dose of potassium or sodium iodid should be given as is represented by the amount of iodid in the recommended dose of the proprietary product, the absence of unpleasant symptoms would be the same.

On the other hand, when a physician uses every proprietary preparation or drug that is presented to him he will very soon, *by the variations in clinical experience and results,* unjustly condemn a splendid preparation offered him by one firm and laud a similar but inferior preparation offered him by some other firm. This is manifestly unjust to the pharmaceutical firm that produces the best preparation. The physician in general practice has no way of determining which of these preparations is the best. Consequently there should be some referee to determine this for him, and the Committe on Revision of the Pharmacopeia should be the court of appeal. In the meanwhile the Council on Pharmacy and Chemistry of the American Medical Association is presenting honest reports of the products offered it for investigation.

It is true that many National Formulary preparations, as well as some of the Pharmacopeial preparations, are imperfect, as, for instance, some of the organic iron preparations. If a physician does not think that he can get the results desired from the simple iron preparations, and wishes to order an organic preparation, an honest druggist should furnish him with the best preparation that can be bought. If the best preparation is made by a certain firm, the druggist should buy that preparation of that firm. It should not be necessary for the physician to specify. To put the druggist on his honor, a physician writing for any preparation that is not readily made by the pharmacist himself should write after the preparation "the best," and the druggist so trusted should furnish the best preparation and charge the patient what he must for the best.

With the splendid laboratory equipments of the large pharmaceutical firms, and with the scientific ability of their chemists, it would seem to be the duty of these firms to prove to the committees revising the National Formulary and Pharmacopeia how much better their preparations of Pharmacopeial and National Formulary combinations are than those now official. The official preparations should then be made according to the formula proved chemically and pharmacally to be the best, and all would be the same, and each druggist could buy of the firm with whom he traded, and the physician ordering that preparation could always expect the same product.

While this suggestion is idealistic and seems to partake of celestial perfection, still it is not only possible, but probable, that sooner or later such conditions will obtain. It resolves itself into the following propositions:

1. Every patient desires the best treatment that he can obtain.

2. Every physician will order the best preparations of drugs of which he has knowledge.

3. Every druggist will fill the prescription with the best preparation called for that he can buy.

4. Every pharmaceutical firm will furnish as good a preparation of the best drugs as can be obtained in any market, and each preparation so furnished will come up to the standard required by the official books, viz.: the United States Pharmacopeia and National Formulary.

The practicing physician is now confronted by two evils. If he specifies a particular make of a preparation in its original package the patient often receives therewith a mass of literature concerning other products made by the same firm and gratuitous instruction not only "how to take" this preparation and of the many things for which it is of value, but also is advised to prevent other conditions or diseases by taking other remedies which this firm produces. Even if the druggist removes this mass of literature and superfluous labels from the package, often the firm's name or the name of the preparation is imprinted in the glass, and to the patient it appears that he has paid perhaps $2.00 for an office visit to get a $1.00 bottle of "patent medicine." If, on the other hand, the physician orders the preparation removed from its original package and transferred to the druggist's bottle, there is the possibility, and it probably occurs not infrequently, that the patient will receive an inferior product substituted for the one ordered. This generally can not be discovered by the physician or the patient and, therefore, can not be prevented. Consequently a prescription calling for "the best" puts the druggist on his honor, and the patient is more likely to receive the best.

The above method of prescribing products difficult of manufacture applies to well-recognized preparations and not to mixtures such as cough, diuretic or hypnotic mixtures. Any ready-made preparation which contains a series of ingredients is simply like ready-made clothing and will fit the individual about as well. In other words, the patient is fitted to such a preparation and not the preparation fitted to the patient. If a physician can not write a prescription that is individualized to his patient, he should not practice medicine, but should instead take steps to prepare himself in this important branch of therapeutics.

If a physician desires to order a proprietary preparation of milk, laxative salt, disinfectant, antiseptic mixture, or cosmetic ointment or powder, he should not write a prescription for it. He should either tell the patient to obtain it, or write the name informally on any piece of paper, or on the back of his prescription blank. If this method is followed there is no prescription to be filled, the patient is not charged for the filling of a prescription, the patient knows that he is obtaining a proprietary article, and does not think that the physician has endeavored to humbug him by writing a formal prescription for something he could have readily obtained without a prescription.

Every physician should be pleased to meet a gentlemanly traveling salesman of a reputable pharmaceutical firm. He may investigate new drugs and elegant preparations, but he should never tolerate the presentation of a mixture which he should be better able to combine for himself to suit his individual patients. If a new drug is offered, synthetic or other, and the physician wishes to try it, he should *order it as the drug* and give it in capsule, powder or solution as he deems advisable. He should *never prescribe a preparation* of this new drug offered by the firm interested, as many times the activity has been accentuated by the addition of some very common and well-known active drug.

It should be repeatedly declared and understood by all that the best therapeutic work can be done only by the perfect cooperation of pharmaceutical firms, dispensing druggists and physicians.

## DIVERTICULITIS

Surgeons are directing the attention of the profession to an inflammation of this second, but irregularly placed, "appendix" of the intestine, and it seems now to have been proved that not a few cases of unexplained abdominal pain and some instances of diffuse peritonitis are caused by inflammation of this structure. The symptoms of acute inflammation of Meckel's diverticulum are similar to those of appendicitis, except that the region of primary tenderness and pain is generally in the left abdomen. A diagnosis of localized inflammation in this region would call for the same treatment as that of acute appendicitis, viz.: absolute rest, local ice applications, gentle evacuents of the bowels and a liquid diet. Perhaps enemata other than that of small quantities of warm oil had better not be used.

The symptoms calling for surgical consultation and perhaps immediate operative interference are the same as in appendicitis, viz.: high temperature, rapid pulse, severe pain, a tumor and increasing leucocytosis. Perhaps, like appendicitis, a serious inflammation of this structure could occur without a leucocytosis, hence leucocytosis should be confirmatory and should not necessarily make a decision for or against operation.

Chronic inflammations, more frequently in the region of the sigmoid, probably occur oftener than has yet been noted. Gentle oil injections or small quantities of physiologic saline solution to keep the sigmoid and descending colon free from any stasis of feces would be the proper local treatment. A diet that did not cause intestinal indigestion and intestinal fermentation in the individual case would be the diet indicated. Small but sufficient doses of saline laxatives should be the laxative treatment, if such were needed. If pain and bowel discomfort continued or recurred in the same region of the abdomen, and localized tenderness was found on the patient's moving about and attending to his ordinary duties, operative interference should be considered.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, JANUARY 9, 1909

## INDUSTRIAL HYGIENE: A NEGLECTED FIELD

We recently commented on George M. Kober's "Industrial and Personal Hygiene," which may be regarded as one of the first evidences that our country is at last entering on the exploration of what has previously been an almost completely neglected field. Indeed, Dr. Kober was impelled to make the above investigation by the statement of a German hygienist to the effect that the United States alone of all civilized countries could furnish no information on the subject of its industrial accidents and diseases.

It is almost a century since Great Britain and France began the study of dangerous trades and their consequences, and within fifty years most of the European countries had followed their example. There is now in all these countries a more or less complete system of legislation governing the dangerous trades, and all trades are listed as dangerous which are in any way deleterious to the health of the workers. Moreover, legislation follows the development of industry, for from time to time medical commissions are appointed to inquire into the possible dangers of new substances employed in the trades. For instance, a British commission has just reported concerning the poisonous effect experienced by workers in African boxwood, which was introduced into England not long since and is now extensively used in the manufacture of weavers' shuttles. In Germany a careful study has been made of the dangers attending the use of the newer anilin derivatives. France has turned her attention especially to the development of the lead trades and has published reports showing the increase in cases of lead-poisoning due to the enormous growth of the electrical industry. All these countries have periodicals devoted to the subject of industrial hygiene, and at the last meeting of the International Congress of Hygiene in Berlin no less than fifteen papers were presented dealing with the diseases and accidents of the industrial world.

When we turn to our own country the contrast is striking. We have statistics as to the mortality rate in the different trades but almost nothing as to the far more important feature, the morbidity rate. In the case of women wage-earners the uselessness of this one-sided information is strikingly shown, for according to the federal statistics women factory workers have a lower death rate than any other class of society, the truth being, of course, that few women die as factory workers. When death comes most of them have passed into the class of housewives. Nor do the mortality statistics give really accurate information, because the classification of the trades is not sufficiently discriminating. Thus, the men who work at the metal-polishing wheels are listed together with the men in other branches of the metal trades, and therefore the federal figures do not show the enormous death rate from pulmonary disease among these men which is revealed by an examination of the records of the Metal Polishers' Union. In the older countries not only the death rate but the injury to health caused by the trades is made the special object of study and of government control; and here we American physicians fall far behind our European contemporaries. The physicians of Germany, France, Great Britain and Switzerland have grown alert to the close connection between occupation and disease. In this country there is a space on the physician's history sheet for "occupation," but unless the connection is obvious it is too often overlooked. Take the lead trades, for instance. How many of us have any adequate conception of the wide use of lead and its salts in the different trades? In France it has been estimated that lead in some form enters into the manufacture of no less than 111 different articles, and the list includes some of the largest industries in this country, such as the rubber industry, the potteries, the manufacture of electrical appliances and of tinware. To most of us lead-poisoning is suggested only if we see a painter or a printer with wrist-drop or colic, while a French physician will look for arteriosclerosis or lead cachexia if his patient tells him that he is making storage batteries or handling soft rubber, and will suspect chronic lead-poisoning if he has a case of apoplexy in a working man.

There are signs, however, that we are beginning to wake up to a sense of our inferiority in the field of industrial hygiene. Dr. Kober's book is one sign; others are to be found in the work of the State Bureau of Labor and Industrial Statistics of Wisconsin, in the reports already issued by the State Board of Health of Massachusetts, in the appointment of a commission to study the dangers of industry in Illinois, and in the work of various lay investigators such as those employed under the Sage Foundation. The important thing to be emphasized is that in all work of this sort laymen must fall back upon the help of physicians; and they should have this help.

The investigator has inspected, we will say, a factory in which the ventilation is bad and the amount of fluff and dust excessive. He has found large numbers of the employés pale and unhealthy-looking. Unwilling to depend on his own impressions alone, he seeks out the physicians of the neighborhood and inquires as to the diseases most common among the mill hands. While he finds some practitioners who show that they have

devoted thought to the connection between occupation and disease, he is likely to find many who have not done so. The latter may not know even in what part of the work their patients are engaged and for what dangers to look. Many will not realize that felt-hat workers handle skins treated with nitrate of mercury; that tin-platers are exposed to sulphuric acid fumes; that arsenical poisoning should be looked for in artificial flower-workers and lead-poisoning in women who stencil enameled signs. It is only by painstaking study of this kind on the part of men engaged in practice among working people and of men in charge of our great dispensaries and public hospitals that the groundwork can be laid for the science of industrial hygiene in the United States. Our problems are different from those of Europe. Machinery is used here far more generally than in the older countries, and in consequence the poisonous trades have been robbed of many of their dangers. "Phossy jaw" (necrosis of the jaw due to phosphorus-poisoning) is practically unknown in our match factories; file-making, which in England is carried on by hand and is one of the worst of the lead trades, is here done by machinery and is comparatively safe. On the other hand, this increased use of machinery is productive of ill as well as of good. Our accident rate is far above that of any other country, and nowhere is work done with such speed. European hygienists have begun to study the effects of overfatigue on the health of the workers, but the "piece-worker" in our factories attains a speed unknown to the workers in the older countries and must suffer a greater degree of fatigue.

More and more is urged the necessity of legislative control of the industries which are dangerous to the health of the workers, but such legislation should not be a mere copy of the laws of Great Britain or of Germany, but should be planned to meet the needs of our own situation; and this can not be done until the conditions of our industrial world have been studied by competent men.

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## AN OBJECT LESSON IN PUBLIC POLICY AND POLITICAL ACTION

An object lesson of deep significance to legislators, to the medical profession, and to the public in general has just received its finishing touches by the selection of Hon. Theodore E. Burton to succeed Hon. J. B. Foraker as United States senator from Ohio.

The lesson began a number of years ago in the fight to secure a national food and drug law. This measure, designed to secure good food for the well and safe medicines for the sick, was fostered by the American Medical Association. The entire force of its legislative organization, with actual membership in every county and actual influence in every school district in the United States, naturally espoused the cause of the people. On the other side were ranged highly capitalized interests, representing the adulterators of foods, the manufacturers of dangerous and enslaving drugs and the makers of low-grade whiskies.

The favorite method of the opposition was to assume an air of friendliness for the bill while offering amendments that would utterly destroy its force. When the bill was sent to the Senate in February, 1906, these tactics were adopted by Senator Money for the canning interest, Senator Hemenway for the "patent-medicine" interest, and Senator Foraker for the whisky interest, and later in the House by Representative J. H. Southard, from Ohio, for the proprietary medicine interest.

The attitude of these four men in particular was so disingenuous and in such flagrant disregard of the expressed will of the people as manifested by and through the entire medical profession that it amounted to an offense to every physician in the United States. So flagrant and contemptuous, indeed, was the offense that the moral force of the whole medical profession, especially of the states of Mississippi, Indiana and Ohio, was placed in the balance. In this country such a question can be tried out only in the political arena. In consequence, the attention not only of the medical profession, but of the people of those states, was called to the facts. The slow but sure process of molding public opinion by interviews, by heart-to-heart talks between physicians and their patrons, was at once actively inaugurated, and has been as actively maintained during the two years that have since elapsed.

Senator Money retired on account of ill health before the campaign against him could be made effective. The first congressman to feel the chastening rod was Representative Southard, of the Ninth Ohio District, who, under the active opposition of the physicians of his district, was defeated for re-election in 1908. In Indiana, the widespread opposition of physicians was powerless in the presence of machine methods to prevent the nomination of a Republican legislature favorable to Senator Hemenway's return. So Senator Hemenway's legislature itself was not elected, the opposition of the physicians contributing no little to the result.

In Ohio the nearly nine thousand physicians of the state, acting as a unit, in their house-to-house visits during two years, had so far molded public opinion against Senator Foraker that his connection with the Standard Oil Company, shown by Mr. Hearst, was unnecessary to crystallize an antagonistic sentiment. But when the senatorial campaign came on Dr. Charles A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, for the purpose of making the lesson more specific and more sure, himself entered the lists as a candidate for the office. He made a thorough canvass of his state and presented to the people their own cause as represented in still further perfected food and drug legislation, in the establishment of a national department of public health and in the enactment of other social and

economic reforms. The proprietary medicine interest threatened to withdraw their advertising from newspapers that recognized his candidacy and in that way deprived the movement of much deserved publicity. Nevertheless, Dr. Reed's canvass was a success as an educational propaganda.

After the selection in caucus of Mr. Burton, who may be set down as an ardent friend of everything that is for the best interests of the public in the way of national legislation, Dr. Reed gave the press a statement, which commenced with the remark that he and his friends were entirely satisfied with the result, and which concluded as follows: "As for me, all I have to say is that three United States Senators and one Ohio Congressman who tried to ruin the pure food and drug bill have now all been eliminated from public life. It is a glorious clean-up. From this time on let no member of either branch of Congress imagine that he can thus disregard the welfare of the people and rely for immunity on the shortness of the American memory, the fancied remoteness of Washington or the relative inaccessibility of the *Congressional Record*."

## DISSOCIATION OF PERSONALITY AS A NEWS STORY

The remarkable case of dissociation of a personality described by Dr. Morton Prince[1] is well known to the medical profession. The subject is one that calls for careful investigation—in the interests of science at the hands of psychologists and neurologists, and in the interest of their potential patients at the hands of the profession at large. It is, however, an altogether different thing to publish the details of such investigations as a spice to whet the appetite for morbid curiosity of a sensation-loving public, as has been done recently by the publication of a story of the newspaper stamp made out of this case by a writer in the *Ladies' Home Journal*. Of course no one can prevent a "story" being made out of the contents of a book that can be purchased through any bookseller. It should be remembered, however, that this book is of a professional character and is of such a price as necessarily to minimize the likelihood of its being widely read outside of the clientèle for which it was written and is suitable. But we trust that the suggestion that the newspaper publication of this lurid story received the sanction of Dr. Prince, as might be inferred from the publication of Dr. Prince's portrait and the statement that it is based partly "on personal interviews with the author," is incorrect.

The determination of the medical profession to endeavor to remove the veil of mystery that from the earliest time has enshrouded medicine from the public at large, by enlightening it concerning the basic facts of medical science, more especially in relation to the prevention and early recognition of disease, can not reasonably be held to include the publication of the most intimate details of the life of a particular patient. The objections to such a course have been well expressed in a contemporary,[2] which, after pointing out that many of the statements are of the kind that would ordinarily not be told even to a close friend, and to the physician only under the conviction that it would go no further, denies utterly the right of the public to hear or to read such statements, and confesses that one's feelings on reading this article as published are much the same as if one were stealthily perusing a personal letter belonging to someone else. Even if it is not wrong, it is emphatically in the worst possible taste. It may be urged that Dr. Prince would hardly have published his book without the consent of the patient, and save in such a form as to preserve the patient's anonymity, and that this by implication justifies the use of the subject matter under the above described circumstances. The *Montreal Medical Journal* pertinently asks whether or not any scientific purpose is thus served. The subject of mental disease — and it may not occur to the public that this woman was insane merely in an extraordinary manner — is so difficult a subject to the best trained alienist that there is frankly no hope of a dabbler ever learning anything about it, and the cause of public education is no more helped by such an article than it would be by a dissertation on the subject of intrauterine deformities.

The fact of having themselves been born might be thought to give the public the right to ask to be enlightened on the latter, but the claim would hardly be allowed by any sane court. On the other hand, the same journal asks: "Can any harm be done by such an article?" and answers in the affirmative. The average American (of the United States or Canada) has of late been paying as much attention to introspection as is good for him or her. It is easily imaginable that many young women, seeing in some degree in their own minds parallels to the case here recited, may thereby have tendencies to hysteria if not to insanity stimulated; on the other hand, they may learn to excuse their acts by the supposition that they are in the grasp of a higher power, namely, the multiple personality. The precedent is in the highest degree dangerous, and we can only hope it will not be followed in the case of other similar sensational stories. There are two kinds of curiosity: that which is the basis of education, and that tending rather to prurience. The latter is already too common to need help from medicine.

## DEATH BY ELECTROCUTION

The question of the efficiency of the execution of criminals by electric current is again being agitated in the east. The old claims are being made that the electric current does not destroy life, but that the real

1. Dissociation of a Personality, by M. Prince, New York; Longmans, Greene & Co., 1905; reviewed in THE JOURNAL, Feb. 16, 1907, p. 635.

2. Montreal Medical Journal, December, 1908.

execution in these cases is death by postmortem examination, by burial or by some other extraordinary extraneous occurrence. For this reason it has been seriously proposed, according to the newspapers, to attempt to revive electrocuted criminals. One can hardly object to such a test on the ground of humanity, but the fact that electrocution is successful no serious-minded person who has looked into the subject can doubt. The few instances reported of individuals who have recovered after accidental exposure to electric currents of very high voltage are hardly pertinent to the case, and it is known that such accidents are usually fatal in spite of the differences of individual resistance and other conditions that might make the current less certainly deadly. These are properly guarded against in a legally conducted execution and the chances of survival are as remote as they would be after hanging, if, indeed, not more so. Many cases have been reported in which hanging proved ineffective, but how this could happen under modern conditions with physicians to test the efficiency of the method at the time, as is provided for in properly conducted legal executions, is not readily imaginable and still less so in the case of a properly conducted electrocution. Humanitarians who are so desirous to have the criminals, of all men, the ones to die painlessly, have little call to criticise the use of the electric chair.

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### THE LAST PART OF THE HUMAN HEART TO DIE

Physiologists and clinicians are alike interested in the problem of the portion of the heart responsible for the initiation of its rhythmic impulses. Research in recent years has tended toward the localization of this primary automatic center either in the sinus region or in the great veins behind the sinus. This study in the human heart is complicated somewhat by the fact that the sinus region is not so well separated from the auricle or atrium as it is in the lower animals, on which much of the experimental work has been done. An interesting observation has recently been made by W. Koch.[1] This observer had the opportunity of examining the dying heart of a human fetus and of comparing the phenomena there with the dying process in the rabbit's heart. He finds that the part of the heart which continues to contract longest during the death process is situated, not at the root of the superior vena cava but in the wall of the coronary vein of the heart, a situation which in his opinion belongs embryologically to the sinus venosus. It will be recalled that Tawara, the Japanese investigator who worked with Aschoff, was able to follow the ramifications of the conducting muscle bundle to this region also. If these observations of Koch are confirmed they will strongly support the hypothesis that the sinus is the primary motor center for the human heart as well as for the heart of animals. It may be interesting in this connection to note that actual pathologic lesions have been reported in the sinus region of the heart in patients dying of chronic arrhythmia. Schoenberg[2] has examined about fifty hearts with especial reference to the condition of the junction between the musculature of the atrium and that of the superior vena cava. In five cases in which the arrhythmia was observed carefully during life Schoenberg demonstrated inflammatory changes in the region mentioned. He thinks that his findings are in favor of the theory that the stimuli for the contraction of the human heart originate at this sino-atrial junction.

1. Ueber das Ultimum moriens des menschlichen Herzens: ein Beitrag zur Frage des Sinusgebietes, Beitr. z. path. Anat. u. z. allg. Path., 1907, xlii, 202.

2. Schoenberg, S.: Ueber Veränderungen im Sinusgebiet des Herzens bei chronischer Arhythmie Frankf. Ztschr., f. Path., 1908, ii, No. 1.

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## *Medical News*

### ILLINOIS

**Receives Many Patients.**—The annual report of Cook County Hospital for the fiscal year 1908 shows that 28,142 patients were admitted to the hospital. At the beginning of the year there were 1,145 patients under treatment, and at the close of the year, 1,322. The daily average number of patients during the year was 1,274, and the average daily cost for each patient was 99 cents.

**Cocain Law Upheld.**—The new cocain law was declared valid December 16, by the state Supreme Court in the first case referred to it since the act was passed by the legislature. The case at issue was a fine of $500 imposed on Frank and Paul Zito, druggists of Chicago, who were convicted in the lower court of having sold catarrh powder containing cocain. The Zitos contended that the powder was sold by a clerk, but the Supreme Court held the owners responsible. The law holds that cocain must not be sold in "patent medicines" or any form excepting on the prescription of a physician.

**Society Meetings.**—At the thirty-fifth annual meeting of the North Central Illinois Medical Association, held in Princeton, December 1 and 2, the following officers were elected: President, Dr. James F. Percy, Galesburg; vice-presidents, Drs. Franklin A. Turner, Sandwich, and Alfred E. Owens, Princeton, and secretary-treasurer, Dr. George A. Dicus, Streator.—— At the annual meeting of Effingham County Medical Society, held December 8, Dr. Charles F. Burkhardt, Effingham (for the last four years secretary of the society), was elected president; Dr. Frank W. Goodell, Effingham, secretary; Dr. Henry Taphorn, Effingham, treasurer; Dr. George J. L. Haumesser, Shumway, delegate to the state society, and Dr. Joseph B. Walker, Effingham, a member of the medical defense committee.

### Chicago

**Contagious Diseases.**—The contagious disease condition has not varied much in the past week, during which 728 cases were reported, distributed as follows: Scarlet fever, 229; diphtheria, 193; measles, 97; tuberculosis, 65; typhoid fever, 41; chickenpox, 36; pneumonia, 35; whooping-cough, 14; puerperal fever, 3; and minor communicable diseases, 15.

**A New Journal.**—The latest journalistic applicant for medical favor appears this month in Chicago. Its title is *"Hygiene and Diet, and How to Live."* It is a monthly periodical devoted to sanitary food, clothing, shelter, and how to prolong life, is edited by Dr. Carl H. von Klein, and published by the Hygiene and Diet Publishing Company of Chicago.

**New Sanitarium.**—As the result of a year's work on the part of Jewish club women of the city, the Winfield Tuberculosis Sanitarium will soon be opened. The project was made possible by the gift by the president of the association, of a 17-acre tract at Winfield, Ill., on which there is a modern building of 36 rooms, which has been renovated and fitted with ample space for outdoor sleeping quarters.

**Down-Town Relief Stations.**—Plans are going forward rapidly for opening a series of emergency accident relief stations in the down-town district to be known as the Iroquois Memorial Stations. At the meeting between Health Commissioner Evans and Dr. George J. Tobias, president of the Iroquois Memorial Association, plans were discussed for remodelling the city property at 87 Market Street so that

construction on the first station may be begun in May next, and turned over to the city on the sixth anniversary of the Iroquois Theater fire.

**The Death Record.**—The total mortality for the week ended January 2 was 615, an increase of 133 over the preceding week, but a decrease of 50 as compared with the corresponding week of last year, the respective annual death rates being 14.41, 11.59 and 16.10 per 1,000. There was a considerable increase in the mortality for chronic diseases, especially nephritis, heart disease and consumption, while the mortality from pneumonia was markedly decreased. There were 80 deaths from pneumonia, 73 from heart disease, 68 from tuberculosis, 66 from nephritis, 39 from violence (including suicide), 32 each from cancer and acute intestinal diseases, 20 from diphtheria, 12 from scarlet fever, 8 from typhoid fever, 2 from influenza, and 1 from whooping-cough.

## INDIANA

**Society Meetings.**—At the annual meeting of Clay County Medical Society, held in Brazil, December 17, the following officers were elected: President, Dr. Samuel G. Hollingsworth, Brazil; vice-president, Dr. Timothy M. Weaver, Staunton; secretary-treasurer, Dr. George W. Finley, Brazil; censors, Drs. T. Roy Cook, Bowling Green; George M. Pell, Carbon; and Harold J. Pierce, Cloverland.——At the annual meeting of Lake County Medical Association, held in Hammond, Dr. Alexander G. Schlicker, East Chicago, was elected president; Dr. William P. Alexander, Gary, vice-president; Dr. Eldridge M. Shanklin, Hammond, secretary-treasurer; Dr. L. Eleanor Scull, Hammond, censor; Dr. William F. Howat, Hammond, delegate to the state society; and Dr. Frederick W. Sauer, Indiana Harbor, alternate.

## LOUISIANA

**Personal.**—The governor has appointed Drs. Andrew S. Reisor, Louis Abramson and James F. O'Leary members of the Shreveport board of health.——Dr. William L. Dickson has been appointed chairman and Drs. John J. Scott, William Dalzell, John Comegys and Thomas P. Lloyd members of the board of trustees of the Charity Hospital, Shreveport.——Dr. C. William Groetsch, New Orleans, has been appointed assistant coroner of Orleans parish, vice Dr. S. Fitzhugh Mioton, retired.——Dr. Willoughby E. Kittridge has been elected president, and Dr. Fulton Rogers, secretary, of the Napoleonville board of health.——Dr. Sidney P. Israel has been appointed surgeon with rank of major, and Drs. Frank J. Kinberger and Clarence P. May, captains and assistant surgeons in the Second Infantry La. N. G.——Dr. Richard O. Simmons, Alexandria, was painfully injured recently in a collision between his buggy and a wagon.——Dr. Lee C. George, Monroe, has been appointed division surgeon of the Iron Mountain-Missouri Pacific Emergency Hospital, Monroe.——Dr. George Rossner, Gretna, has been made president of the board of health of Jefferson parish, vice Dr. C. Milo Brady, New Orleans, appointed inspector of the State Board of Health.

## MARYLAND

**Baltimore Deaths.**—For the week ended January 2, the deaths in Baltimore numbered 218, equivalent to an annual rate of 19.06 per 1,000. Pneumonia caused 32 deaths and consumption 26 during the week.

**Banquet to Health Commissioner.**—Dr. James Bosley, health commissioner of Baltimore, was tendered a banquet by the physicians and other attachés of the health department, December 29. Dr Thomas Richardson of the quarantine hospital presided as toastmaster.

**Writers of Maryland.**—In a list of authors prepared for the Baltimore *Sun* by Dr. Bernard C. Steiner, appear the names of six medical men, namely, Dr. Eugene Fauntleroy Cordell, author of the "Medical Annals of Maryland," "Historical Sketch of the University of Maryland," and "The Drs. Gustavus Browns of Lower Maryland"; Dr. Howard Atwood Kelly; Dr. Thomas McCrae, assistant editor of Osler's System of Medicine, and author of a work on "Cancer of the Stomach"; Dr. William Osler, regius professor of medicine at Oxford University; Dr. Leonard K. Hirshberg, author of "How to Feed the Baby," "Medical Fallacies," "Practical Bacteriology," and "Light as a Therapeutic Agent," and Dr. Pearce Kintzing, author of the "Science of Internal Disease" and "Long Life and How to Attain It."

**Society Meetings.**—At the annual meeting of Talbot County Medical Society, held in Easton, December 6, the following officers were elected: President, Dr. Charles H. Rose, Cordova; vice-presidents, Drs. Charles F. Davidson, Easton, and William S. Seymour, Trappe; secretary-treasurer, Dr. S. Denny Willson, Easton; censors, Drs. Clifford M. Stelle, Cordova, and Samuel C. Trippe, Royal Oak; delegate to the Medical and Chirurgical Faculty of Maryland, Dr. Philip L. Travers, Easton, and alternate, Dr. James A. Stevens, Easton. The society passed a resolution endorsing state care for the insane.——The Medical Club of Washington County, at its annual meeting, held in Hagerstown, elected the following officers: President, Dr. Augustus C. Maisch; vice president, Dr. F. H. Charles; secretary-treasurer, Dr. Samuel M. Wareman, and curator, Dr. Luther H. Keller.

## MICHIGAN

**Society Meetings.**—At the annual meeting of Chippewa County Medical Society (including physicians of Chippewa, Luce and Mackinac counties), held in Sault Ste. Marie, December 1, Dr. John J. Griffin, Sault Ste. Marie, was elected president; Dr. Henry E. Perry, Newberry, vice-president; Dr. James Gostannion, Sault Ste. Marie, secretary-treasurer, and Dr. George J. Dickinson, Sault Ste. Marie, delegate to the state society.——The annual meeting of Calhoun County Medical Society was held in Battle Creek, December 1, and the following officers were elected: President, Dr. George B. Gesner, Marshall; vice-president, Dr. Herbert A. Powers, Battle Creek; secretary, Dr. Arthur S. Kimball, Battle Creek; delegates to the state society, Drs. William C. Marsh, Albion, and William H. Riley, Battle Creek, and alternates, Drs. Samuel R. Eaton and M. A. Mortensen, Battle Creek.——Oakland County Medical Society held its annual meeting and banquet in Pontiac, December 2. The following officers were elected: President, Dr. Clark J. Sutherland, Clarkston; vice-president, Dr. Thomas E. McDonald, Holly; secretary-treasurer, Dr. John T. Bird, Clarkston; and censors, Drs. Edmund A. Christian, Nathan B. Colvin and Mason W. Gray, all of Pontiac.——At the annual meeting of Hillsdale County Medical Society, held in Hillsdale November 27, Dr. Silas B. Frankhauser, Hillsdale, was elected president; Dr. Ira J. Stoner, Ransom, vice-president; Dr. W. F. Waller, Frontier, treasurer, and Dr. Burt F. Green, Hillsdale, secretary.——An antituberculosis society was organized in Hillsdale, December 2, with Rev. N. E. Jerome, president; Dr. Walter H. Sawyer, vice-president, and H. C. Blackman, treasurer.——The annual meeting of Muskegon-Oceana County Medical Society was held December 4, in Muskegon. The following officers were elected: Dr. John F. Denslow, Muskegon, president; Dr. John D. Buskirk, Shelby, vice-president; Dr. Vernon A. Chapman, Muskegon, secretary (re-elected); Dr. Jacob Oosting, Muskegon, treasurer; Dr. George S. Williams, Muskegon, trustee; Dr. Frank W. Garber, Muskegon, delegate to the society, and Dr. John D. Buskirk, Shelby, alternate.

## MINNESOTA

**Personal.**—Dr. James E. Moore has been made professor of surgery in the University of Minnesota, Minneapolis.——Dr. T. E. Villiers Appleby, St. Paul, is said to have been paid $175,000 in gold, in settlement of all claims by him against the estate of his late wife.

**Asks Quadrupled Appropriation.**—The State Board of Health announces that it intends to ask $100,000 to carry on the work of the department for the coming year. It wishes to establish branch laboratories at Mankato and Crookston, and also has to carry on the work of vital statistics imposed on it by the legislature.

**McCormack Itinerary.**—Dr. J. N. McCormack will lecture before the Ramsey County Medical Society, in St. Paul, January 11; before a public meeting in St. Paul, January 12; before the Hennepin County Medical Society in Minneapolis, January 13; before a public meeting in Minneapolis, January 14, and before the Southwestern Medical Society, January 15.

**To Celebrate Union of Schools.**—To celebrate the fact that the University of Minnesota has absorbed the last of the private medical schools of the state, so that the teaching is entirely in the hands of the college of medicine, the faculty of that department invited the faculty, the students, the medical alumni of the university, and the medical profession of the state to attend a unification meeting December 8. President Northrop presided and the principal address was made by Dr. Richard Olding Beard, head of the department of physiology, in which he gave a review of the history of the medical teaching in the state. Addresses were also made by Drs. Alexander J. Stone and Parks Ritchie, St. Paul, Drs. Frederick A. Dunsmoor, Charles A. McCollom and Jehiel T. Moore, Minneapolis, the governor of the state, and others.

## MISSISSIPPI

**Sentenced for Life.**—Thomas J. Birdsong, a dentist of Hazlehurst, charged with the murder of Dr. Albert B. Pitts, is said to have been sentenced to imprisonment for life, December 15.

**Personal.**—Dr. T. H. Henry has been elected president and Dr. Robert S. Curry a member of the board of health of Columbus.——Dr. Edwin H. Caraway has been elected president of Long Beach.—Dr. William E. Moody, Lake, was shot and dangerously wounded in a quarrel December 15.

**Vote for Public Health Bureau.**—The Biloxi Commercial Club recently adopted resolutions asking the congressmen from Mississippi to vote in favor of the establishment of a public health bureau as outlined in the resolutions adopted by the House of Delegates of the American Medical Association at the Chicago session.

**Society Meetings.**—At the second semi-annual meeting of Clarksdale and Six Counties Medical Society, held in Clarksdale December 10, a resolution was adopted barring from membership in the organization any physician who should examine for life insurance for a less fee than $5. The following officers were elected: Vice-president for Tallahatchie county, Dr. W. A. Prince, Needmore, and censors, Drs. T. R. Montgomery, Mattson, and John S. Brooks, Robinsonville.——Jefferson County Medical Society, at its annual meeting held in Fayette December 12, elected the following officers: President and delegate to the state medical society, Dr. J. D. Shields, Church Hill; vice-president, Dr. Leon R. Harrison, Fayette, and secretary-treasurer, Dr. John V. McNair, Fayette.

## MISSOURI

**Fire in Hospital.**—On December 20, fire caused damage to the extent of $15,000 to the Laywood Hospital, Sedalia, but all patients were removed in safety.

**Personal.**—Dr. James K. Graham, St. Joseph, formerly county physician, has been appointed a member of the board of commissioners to pass on the condition of the Buchanan county jail.——Dr. R. L. Gleason, St. Louis, has resigned from the staff of the City Hospital to accept an appointment in the Indian Service in Oklahoma.

**Society Meetings.**—At the meeting of the Grand River Medical Society in Chillicothe, December 9, the name of the society was changed to Grand River Medical Society of the Eleventh Judicial District. All members of the county societies of Linn, Livingston, Carroll and Chariton counties, numbering 105, were enrolled as members without further payment of dues this year. Officers for the ensuing year were elected as follows: President, Dr. Haynie M. Grace, Chillicothe; vice-president, Dr. Harry W. Tull, Carrollton; and secretary, Dr. John L. Burke, Laclede. The next meeting will be held in Carrollton.——The Rolla District Society held its sixty-seventh meeting in Rolla, December 3. Dr. Edwin L. Hume, Bourbon, was elected president; Dr. James C. Welch, Salem, vice-president, and Dr. William H. Breuer, St. James, secretary-treasurer.——At the annual meeting of Jackson County Medical Society, held in Kansas City, December 1, the following officers were elected: President, Dr. Franklin E. Murphy; vice-president, Dr. Eugene Carbaugh; secretary, Dr. Halsey M. Lyle; treasurer, Dr. William M. Reed; censors, Drs. Scott P. Child and Frederick T. Van Eman, and delegates to the state society, Drs. George B. Norberg, Charles C. Conover, Gordon A. Beedle, and Ernest F. Robinson, all of Kansas City.——At the annual meeting of St. Joseph-Buchanan County Medical Society, held December 9, the following officers were elected: President, Dr. John M. Doyle; vice-presidents, Drs. Joseph W. Ferguson and John I. Byrne; secretary, Dr. Charles Wood Fassett (re-elected); treasurer, Dr. John M. Bell (re-elected); censor, Dr. Wallace B. Deffenbaugh; delegate to the state society, Dr. Clarence A. Good, and alternate, Dr. Emmett S. Ballard, all of St. Joseph.

### St. Louis

**Communicable Diseases.**—During the two weeks ended December 26, there were reported to the health department 386 cases of communicable disease, with 60 deaths, distributed as follows: Erysipelas, 13 cases, 1 death; smallpox, 2 cases; diphtheria, 133 cases, 11 deaths; scarlet fever, 53 cases, 3 deaths; typhoid fever, 13 cases, 4 deaths; cerebrointestinal fever, 3 cases, 1 death; measles, 56 cases; chickenpox, 27 cases; whooping-cough, 6 cases, 1 death; and tuberculosis, 60 cases, 39 deaths.

**Election.**—At the annual meeting of the St. Louis Medical Society, December 26, the election of the following officers for the ensuing year was announced: President, Dr. Clarence M. Nicholson; secretary, Dr. Carroll Smith; members of the council, Drs. George Homan, Cyrus E. Burford, Robert M. Funkhouser and Henry C. Dalton; delegates to the state association, Drs. William W. Graves, John H. Amerland, John C. Morfit, George Homan, Thomas A. Hopkins, Herman L. Nietert, George C. Crandall and Vilray P. Blair; and alternates, Drs. Paul Y. Tupper, Walter Baumgarten, Walter C. G. Kirchner, Malvern B. Clopton, William E. Sauer, Frederick J. Taussig, Horace W. Soper and Jesse S. Myer. The proposition to increase the annual dues to $10 was defeated by a vote of 261 to 163.

## NEW YORK

### New York City

**Harvey Society.**—Prof. J. B. Leathes of the Lister Institute of Preventive Medicine, London, England, delivers the seventh lecture in the Harvey Society course at the New York Academy of Medicine, January 9, on "The Relation of the Liver to the Metabolism of Fat."

**Memorial.**—A movement has been begun to erect a new surgical building for the Presbyterian Hospital as a memorial to Dr. Andrew J. McCosh. A committee has been formed to raise funds among his patients and those who knew him as a friend. Allen Appleton Robbins, 304 Lexington Avenue, is secretary and treasurer.

**Cornell Medical College to be Remodelled.**—Plans have been filed for remodelling Cornell University Medical College. The improvements include the elimination of the present two-story amphitheater for physic and chemistry demonstrations, and making over the space on the third floor into a students' laboratory and that on the fourth floor into the main pathologic laboratory.

**Low Death Rate.**—For the week ended December 26, there were reported 1,278 deaths, and for the corresponding week of last year 1,691, the respective annual rates being 15.07 and 20.59 per 1,000 of population. There was a falling off of almost 200 deaths in tenement houses. One year ago influenza caused 63 deaths; whereas this year only 2 deaths were caused by this disease.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended December 26, 384 cases of tuberculosis, with 135 deaths; 393 cases of diphtheria, with 37 deaths; 369 cases of measles, with 12 deaths; 281 cases of scarlet fever, with 17 deaths; 41 cases of typhoid fever, with 2 deaths; 28 cases of whooping cough, with 3 deaths; 5 cases of cerebrospinal meningitis, with 4 deaths; and 204 cases of varicella—a total of 1,705 cases and 210 deaths.

**Hospital Reports.**—The annual report of the Presbyterian Hospital includes the gift of $1,000,000 from John S. Kennedy, although this gift was made after the close of the fiscal year. This magnificent sum is to be used for construction purposes and not to help out the current expenses. It is stated that the needs of the institution requires a larger expenditure than this. Architects are at work on plans for a new administration building. During the past year 43,220 persons were treated at the hospital, 210 more than the year before. The revenue for the year was $347,710 and the expenses $320,611. The actual hospital earnings were $92,801, an increase of over $8,000 over the year before.——The report of the Williamsburg Hospital shows a deficit of $2,056 and a total indebtedness of $10,294, and a committee of 100 citizens of Williamsburg has been formed to aid the institution.

## OHIO

**Personal.**—Dr. J. Francis Coneffe has been appointed assistant physician at the Columbus State Hospital.——Dr. Darwin G. Palmer, Geneva, has been appointed to succeed himself as a member of the State Board of Health.——Dr. Joseph A. Hall, Cincinnati, has been appointed to succeed Dr. John E. Russell, Mt. Vernon, deceased, as a member of the commission for the construction of the Lima State Hospital.——Dr. Corlies Keller has resigned as assistant superintendent of Longview Hospital, Cincinnati, and Dr. John Batte has been appointed his successor.——Drs. Francis H. Williams, Howard C. Sellards, Edgar O. McCall and James B. Ray, trustees of Hempstead Hospital, Portsmouth, have resigned.——Dr. Henry C. Houston, Urbana, has been elected dean and Dr. Asa C. Messenger, Xenia, secretary of the medical and surgical consulting staff of the Ohio Soldiers' and Sailors' Orphans' Home.——Dr. Theodore Bunge, Cincinnati, has been appointed assistant coroner of Hamilton County, vice Dr. Oliver P. Coe, elected coroner.

## PENNSYLVANIA

**Fire in Asylum.**—A small fire occurred in the State Hospital for the Insane at Norristown, December 25.

**Contagious Diseases.**—A case of smallpox was discovered in Harrisburg, December 18.——New cases of typhoid fever are reported in Reading daily, but the number of new cases is decreasing each day. Since November 18, when the epidemic began, 654 cases have been reported, with 26 deaths.

**Doctors Warned.**—According to instructions issued by the State Division of Vital Statistics, suits will be brought against physicians who fail to make proper returns of births and deaths in every county. Instances have been found in Lancaster and Chester counties, where physicians have been remiss and they will be prosecuted. The reports made to the state authorities are so inadequate as to cause considerable trouble and frequent returns for correction are made.

**To Safeguard New-Born Infants.**—To guard new-born infants against blindness, State Health Commissioner Dixon has revived the state law against this misfortune and will urge its enforcement. This law passed June 26, 1895, is entitled: "An Act for the Prevention of Blindness," imposing a duty on all midwives, nurses and other persons having the care of infants and also on the health officer and fixing a penalty for the neglect thereof." A letter has been addressed to the physicians of the state calling attention to the existence of the act and the intention to enforce it. Township health officers have been notified as follows:

> Immediately on receiving notification from a midwife or nurse of the occurrence of a case of red or swollen eyes in a young infant you will inform the attending physician of the fact and will place in the hands of the midwife or nurse instructions from this department, explaining that she is to follow them only until a physician arrives to take charge of the case. If no physician has been employed you will urge upon the family the necessity for obtaining one, as otherwise the child may become permanently blind.

### Philadelphia

**Orphanage Quarantined.**—On account of the prevalence of diphtheria, the Elkins Masonic Orphanage has been placed under quarantine by the board of health.

**Land for Hospital.**—The American Oncologic Hospital has purchased for $47,500 a plot of ground 250x234 feet at Fiftieth and Chestnut streets, on which to erect new hospital buildings. The cost of the new buildings will be more than $100,000.

**Anti-Noise Crusade.**—Orders have been issued by the police department to arrest on sight any person or persons who, directly or indirectly, are responsible for undue noises and disturbances in the vicinity of hospitals. Warning signs are to be placed about hospitals: "Preserve Peace and Quiet."

**Medicine for the Poor.**—The Bureau of Health, under the supervision of Dr. Joseph S. Neff, has planned to furnish medicines to the city's poor at cost, plus a minimum charge for compounding. It is the purpose of the department to establish druggists in every ward of the city where this service may be secured. The combined bids for the work, opened December 17, aggregated nearly $10,000.

**Officers Elected.**—At the annual meeting of the North Branch of the Philadelphia County Medical Society, the following officers were elected: Chairman, Dr. George M. Illman; clerk, Dr. Samuel P. Gerhard.——At the annual meeting of the Section of Otology and Laryngology, the following officers were elected for the ensuing year: Chairman, Dr. Arthur W. Watson; clerk, Dr. Ralph Butler.

**Philadelphia Academy of Medicine.**—The newly formed Philadelphia Academy of Medicine was granted a charter by the Court of Common Pleas, December 24. The organization is intended to admit to membership physicians from all schools of recognized medicine. The following officers have been elected: President, Dr. George H. Wells; vice-president, Leon T. Ashcraft; secretary, Ralph Bernstein, and treasurer, Jacob W. Frank.

**Tuberculosis Plans.**—The Committee on Program of the International Tuberculosis Exhibit has prepared a tentative program. Dr. J. Clinton Foltz is chairman of the committee and its members are Drs. Alexander C. Abbot, Louis A. Duhring, Robert G. LeConte, Henry R. M. Landis, W. M. Late Coplin, John F. Roderer and Martin J. Brumbaugh. The opening day, to be officially known as Philadelphia Day, will be held February 15. Addresses will be delivered by the governor, mayor, director of public health and director of public education.

**Tuberculosis Campaign Completed.**—A comprehensive plan has been arranged by the committee in charge of the International Tuberculosis Exhibit to be held in this city from February 15 to March 15, for bringing close to the people the knowledge of how tuberculosis can be prevented and cured. A course of daily lectures has been arranged and representatives of every class of men and women will speak in a practical way of how intelligent warfare may be waged against the disease. Special talks are to be given also in Polish, Italian, German and Yiddish.

**Typhoid Outbreak.**—In the last week of the year 97 new cases of typhoid fever were reported in the city. Of these, 23 were reported from districts not supplied with filtered water, while 74 cases appeared in filtered water districts. Of the latter, 67 were reported from the Torresdale district, 4 from Roxborough, 1 from Belmont, and 2 from that portion of the Forty-second Ward supplied with water from outside the city. The cause of the outbreak is not known and the health authorities do not believe that the water is responsible for the appearance of the disease.

**Health Report.**—The total number of deaths reported to the bureau of health for the week ended January 2, aggregated 516. This is an increase of 42 over the previous week and a decrease of 172 from the corresponding week of last year. The principal causes of death were: Typhoid fever, 5; measles, 4; diphtheria, 14; consumption, 51; cancer, 18; diabetes, 4; apoplexy, 11; heart disease, 63; acute respiratory disease, 92; enteritis, 18; hepatic cirrhosis, 4; arterial sclerosis, 12; appendicitis, 8; premature birth, 13; congenital debility, 16; senility, 5; suicide, 5; accidents, 14; and marasmus, 3. There were 224 cases of contagious disease reported, with 20 deaths, as compared with 164 cases and 20 deaths reported in the preceding week.

**Personal.**—Dr. William W. Keen has been elected vice-president and Drs. George C. Stout and George McClellan have been elected to the board of governors of the University Club.——Dr. B. Franklin Royer has been elected a member of the staff of the State Board of Health.——Dr. Edward B. Gleason, for fifteen years clinical professor of otology, has been elected professor of otology in the Medico-Chirurgical College.——Dr. Thomas M. Rotch, professor of diseases of children in Harvard University, delivered an illustrated lecture in Jefferson Medical College Hospital, December 28, on "The Roentgen Ray as a Factor in the Enforcement of the Laws Relating to Child Labor."——Dr. Brooke M. Anspach has been made assistant in gynecology at the University of Pennsylvania.

## VIRGINIA

**Society Meeting.**—At the annual meeting of Petersburg Medical Faculty, held November 20, Dr. J. Gordon Rennie was elected president; Drs. W. Preston Hoy and Joseph M. Burke, vice-presidents; Dr. Julian R. Beckwith, corresponding secretary; Dr. Leverette S. Earley, secretary-treasurer, and Drs. William H. Crockford, Franklin H. Hains, William E. Harwood, and Edwin J. Nixon, court medical.

**Personal.**—Dr. I. F. Lewis, professor of biology at Randolph-Macon College, has returned from Europe.——Dr. Emory W. Peery, Rural Retreat, sailed for Europe, November 28.——Dr. Albert S. Priddy, superintendent of the Southwestern State Hospital, Marion, has resigned.——Dr. George T. Myers, Norfolk, has been commissioned in the medical corps of the Virginia State Militia, and assigned to duty with Battery B., First Battalion, Virginia Artillery.

## GENERAL NEWS AND COMMENT

**Scientific Temperance Federation.**—This organization held the second annual meeting at its headquarters, 23 Trull street, Boston, on December 8. The annual report summarized the outlook for the antialcohol movement from the scientific standpoint, reviewed the special investigations made, and the work accomplished by the federation in disseminating this and other information. The latter work is done largely by means of loan exhibits of colored charts and diagrams and stereopticon slides, aided by the federation's organ, the *School Physiology Journal* and its *Press Circular*.

**Action on Animal Experimentation.**—At the recent meeting of the American Association for the Advancement of Science, held in Baltimore, December 28 to 31, the following preamble and resolution were adopted:

> From time to time attempts, fostered largely by erroneous statements and accusations and false sentiment and prejudice, are made in some parts of the country to enact specific legislation prescrib-

ing the conditions under which experiments on animals may or may not be performed.

Animal experimentation has been of incalculable benefit to medical science and art, the progress of which is absolutely dependent on experimental methods, as are all the physical and natural sciences.

No abuse of the practice of animal experimentation in the country has been shown to exist to warrant specific legislation relating to the general subject of prevention of cruelty to animals.

*Resolved*, by the American Association for the Advancement of Science, that the unrestricted performance by proper persons of scientific experiments on living animals is essential to the maintenance and progress of medicine and biology.

Dr. David Starr Jordan of the University of California was elected president of the association, and the next meeting will be held in Boston.

**International Congress on Chemistry.**—The Seventh International Congress of Applied Chemistry will be held in London, May 27 to June 2, 1909. The honorary president is Sir Henry Roscoe, the active president Sir William Ramsay; William Macnab is general secretary and Thomas Tyrer and C. Wightman are treasurers. Dr. Harvey W. Wiley, Washington, D. C., has been appointed chairman of the American committee. All who are interested in promoting the applications of chemistry are eligible for membership. The price of membership is one pound for men and fifteen shillings for women. Remittance may be made to Dr. Wiley, who will forward it. Those intending to present papers should write to the chairmen of the section to which the paper belongs. There are eleven sections; a list, with names and addresses of chairmen, is obtainable from Dr. Wiley. Those who can not attend will be amply rewarded for membership by receiving the several large volumes of the publications containing the latest ideas and discoveries. The Proceedings of the Fifth Congress consisted of four volumes containing articles by experts on all branches of applied chemistry, the Proceedings of the Sixth Congress numbered seven large volumes.

**Ankylostomiasis Among Recruits in the Southern States.**—Captain Joseph F. Siler, Medical Corps, U. S. A., has recently made a most interesting report to the Surgeon General of the Army on some observations made at the recruit depot, Fort Slocum, N. Y., to determine the existence and extent of ankylostomum infection among recruits. He had observed that the recruits from the southern states, notably Virginia, the Carolinas, Georgia and Florida, had, in the majority of instances shown a poorer degree of physical development than was the case of the recruits from the more northern states. It had been noted that the weight, chest development and general physique of these recruits, while seldom so poor as to cause rejection, had been noticeably below the general average. They appeared to be poorly nourished and slightly anemic, though marked symptoms of any kind were usually absent. During the past two months he examined the stools of nineteen recruits from southern states with the somewhat surprising result that it was found that sixteen out of the nineteen examined, or 84 per cent, harbored the parasite. Three of these cases were held up during the incoming physical examination as being suspicious of ankylostomum infection. The remaining sixteen cases were not specially selected, but happened to be admitted to the hospital from time to time, suffering from vaccinia and other minor complaints. In view of the large number of recruits drawn from the southern states, and the ease with which a cure may be effected in cases of ankylostomiasis, a circular letter has been sent to all medical officers calling their attention to Captain Siler's report and directing them to investigate the matter in the army at large and report the results of their observations.

## LONDON LETTER

*(From Our Regular Correspondent)*

LONDON, Dec. 19, 1908.

### Consumption Made a Notifiable Disease Among the Poor

For some time there has been considerable discussion among those interested in public health as to whether tuberculosis should, like other infectious diseases, be made notifiable. The main objection is that if notification were adopted the unfortunate sufferer would be treated as a pariah and be unable to obtain work or household accommodation, while the sanatoriums for such a prevalent disease are quite inadequate for all who are affected. As in all public health matters the tendency, however, is toward increasing stringency of regulations and opinion in favor of notification is growing. Compulsory notification being impossible in the present state of the law, many municipalities have adopted voluntary notification, i. e., they request doctors to notify to the health officer under pledge of secrecy cases of tuberculosis under their care with view to sanitary inspection and disinfection of the patient's residence. An important new departure has just been made by the local government board. An order has been issued to the local authorities which will come into force on New Year's Day. All "poor-law cases"—persons relieved by the municipalities in consequence of their poverty—in which tuberculosis exists will be notifiable. The medical officer of a poor-law establishment must within 48 hours of recognizing symptoms of the disease notify the district health officer of the case. In like manner a district medical officer must report a case in a patient whom he is attending at home. Further, the superintending officer of a poor-law establishment must notify the place of destination of any person suffering from tuberculosis who is leaving the institution.

### The Feeding and Medical Treatment of School Children

After a prolonged controversy, the London County Council has decided to devote $70,000 derived from the taxes for the provision of meals for underfed school children. Previously, meals have been provided for such children by charitable subscriptions, but these have been found inadequate. The question of the medical treatment of school children has also been under consideration. Certain recommendations of a special committee have been given in a previous letter.

### King Edward's Hospital Fund for London

King Edward's Hospital Fund for London has received this year, after deduction of expenses, $780,000 for distribution among the hospitals of the metropolis. This includes the munificent donations of $500,000 from Lord Mount-Stephen and $50,000 from Lord Iveagh. The fund has allocated to the hospitals, convalescent homes and sanatoriums for consumption $700,000—an increase on last year of $95,000. During the past 10 years the amount of the fund has steadily increased. Not only does the Fund distribute this large sum, but it also exercises, in virtue of its power of giving or withholding, a useful control over the expenditure of the hospitals. It has done much to promote the economical management of hospitals. It issues to its subscribers and to hospital officials an annual statistical report on the expenditure of the institutions which apply to it for grants. The hospitals are grouped in classes and the average expenditure per bed of each class on provisions, salaries, etc., is given. Those institutions which exceed the average cost per bed have their attention directed to economizing. In 1903 the total of these excesses amounted to over $200,000 in 16 hospitals, where the average expenditure on the items dealt with was $472. By 1906 this average had fallen to $447—a saving of $25 per bed on some 5,000 beds. In other groups of hospitals, particularly children's hospitals, a saving of as much as $35 per bed was effected. The total saving from the more economical administration is estimated at from $150,000 to $200,000 per annum. The system of hospital accounts was also found to be faulty, and an eminent accountant, who is honorary auditor of the Fund, has devised a uniform system of accounts which has been adopted by all the hospitals which receive grants.

### The Royal Society of Medicine

The Royal Society of Medicine, which has recently been formed by the amalgamation of the principal medical societies of the metropolis, has celebrated its first annual dinner, which was attended by the presidents of the Colleges of Physicians and Surgeons, the Director-General of the Army Medical Service and men representative of science, literature, law and the government. The toast of the society was proposed by Mr. Birrell, Chief-Secretary for Ireland, in a speech worthy of the occasion, illuminated by the wit for which the author of "Obiter Dicta" is famous. In replying, the president, Sir W. S. Church, made a gratifying report of the progress of the society, which now numbers 2,215 fellows and 959 members and possesses a library of 100,000 volumes. The society is representative not merely of London but of the British Empire. Of the fellows and members 1,780 live in London, 1,174 in the provinces and 220 are scattered over the face of the world.

## PARIS LETTER

*(From Our Regular Correspondent)*

PARIS, Dec. 17, 1908.

### Reform in Medical Studies

The authorities are now considering the reorganization of the medical curriculum, discussed in THE JOURNAL, Sept. 19, 1908, page 1023. The plan outlined fixes the length of the

period of study for the diploma of doctor of medicine at five years, exclusive of the preparatory year necessary to obtain the P. C. N. (certificate of physical, chemical and natural studies), instead of four years. It is proposed to keep a separate record-book for each student, in which examination marks, credits, diligence, etc., will be recorded. This book must be submitted at all examinations, under penalty of nullification of the results of the examination.

The course leading up to the degree of M.D. will comprise didactic, technical (laboratory), and clinical (hospital) instruction. The hospital course will be obligatory, nine months each year, during the five years of study. At the end of each course the student is to be examined by the chief of the service to which he is attached. Examination on practical studies will be held at the end of each of the corresponding courses of study, with a final yearly examination.

### Free Medical Services for the Police

It has long been the custom in France to give the gendarmes and their families free medical attention. It is really not the gendarmes who profit by the generosity of the physicians, but the government, which ought to provide medical care for the police, as it does for soldiers. Up to the present, the war department has been accustomed merely to address a complimentary letter of thanks to the physicians who have for years attended the gendarmes gratuitously. Now, however, there is a movement among the medical profession against this exploitation of the profession for gratuitous services. Thus the medical syndicate of the Louhans district has unanimously decided that physicians are not bound to attend any public functionaries free of charge. The syndicate has accordingly informed the superintendent of police that free medical care will no longer be given to the gendarmes and their families. There is reason to believe that this movement will soon spread.

### Regulation of the Sale of Eye-Glasses

At its last general assembly, the General Syndicate of French Oculists voted to ask for a modification of the law of 1892 on the practice of medicine; namely, that the diploma of doctor of medicine shall be required of those who fit convex, concave, cylindrical or spherocylindrical glasses by refraction; and that opticians be forbidden to sell eye-glasses, mounted in any kind of frame, without a physician's prescription. Everyone breaking the law will be subject to prosecution on that ground without prejudice to any prosecution for damages which a purchaser may institute for harm suffered from incorrectly fitted glasses.

## BERLIN LETTER

*(From Our Regular Correspondent)*

BERLIN, Dec. 16, 1908.

### Ernst von Leyden Foundation for Cancer Research and the Campaign Against Cancer.

Ernst von Leyden, still untiring as an organizer in spite of his 77 years, recently summoned a representative meeting of state officials, members of the German Central Cancer Research Committee, financiers and representatives of the medical and daily press to discuss ways and means to further the anticancer campaign. The meeting was held at his residence, and it was decided, on Orth's motion, to add to the present German central committee an executive board to collect a fund to support and enlarge the existing institutes for cancer research (in Berlin, Frankfurt a. M. and Heidelberg), and add to their number, the fund to be entitled the "Ernst von Leyden Foundation for Cancer Research and the Campaign Against Cancer." We may now expect a lively agitation in favor of this new measure, and our wealthy countrymen will see with alarm that there is already another call on their purses for benevolent purposes. To what extent the collection will be successful in these times of financial depression and of multiplied demands for social institutions remains to be seen.

### The Chair of Physiology in Berlin

The chair of physiology is left vacant by the resignation of Professor Engelmann. My surmise that Rubner, until now professor of hygiene, would appear as a candidate for the place has become a fact. According to my information, there is the greatest probability that Rubner, to whom the chair of physiology has been offered, will accept the place. This change in his department of teaching would not be surprising, for Rubner's life work has been done especially in the field of physiology. Even the hygienic investigations that have appeared from the hygienic institute under his direction have shown a strong physiologic stamp. There is a certain uneasiness regarding his successor in the chair of hygiene. Those investigators who are occupied with general hygiene and are not simply bacteriologists, are very thinly scattered throughout Germany, for nearly all hygienists have come from the school of Koch or of his pupils, and as Robert Koch can hardly be regarded as a general hygienist, but more especially as the representative of bacteriology, epidemiology, or the methods of control of epidemics, all his pupils are specialists in this field, but research regarding the hygiene of air, water, clothing, food, etc., has been carried on, at least in Prussia only, in Rubner's institute. There is danger, therefore, that Rubner's place will not be filled by a scientist who will follow his lead. The choice of a bacteriologist for the place is less important, since Berlin already possesses in the Institute for Infectious Diseases a model institution for bacteriologic research. Among the candidates, Professor Kirchner, a member of the medical department of the Prussian Ministry of Education, has been mentioned. He has been striving for a long time to reach a regular professorship in hygiene, but, although Kirchner has done good service in his present position, this has been in the direction of legal and governmental measures against epidemics.

In a scientific way he has accomplished practically nothing, and also as a teacher (he is professor extraordinary of hygiene in this university and teaches social medicine) his success is very small. The addresses which he has given in the Berlin Medical Society have been dry and monotonous. Personally, he is not popular even with his associates in office. From all these circumstances it is not strange that the newspaper mention of his name has called forth general opposition. Fortunately, the rumor appears to have no basis; at least so far as I can learn, neither the faculty nor the ministry approve calling Kirchner as the successor of Rubner; it is much more likely that Flügge, the Breslau hygienist, will be selected.

### Death of von Rindfleisch

The noted Würzburg pathologist, Prof. E. von Rindfleisch, died December 6, at the age of 72. Two years ago he resigned his professorship, which he had held since 1874. Rindfleisch was one of Virchow's most important pupils until he became assistant in the physiologic institute at Breslau in 1860, and professor a year later. In the same year he was made prosector in the University of Zürich, where he remained until 1865. He then went to Bonn, and from there in 1874 he went to Würzburg. His work was at first mainly in cellular physiology and pathology, but later he devoted himself especially to the study of tuberculosis. His most important literary work is his "Treatise on Pathological Histology." His "Elements of Pathology" is also very popular. With Virchow, he accepted the neovitalistic theory, which, as is well known, assumes the existence in the living organism of a special vital force outside of the physical and chemical forces. In this matter he took the side of his old teacher in the discussions between Virchow and Haeckel.

### School Physicians for the Higher Schools

On this question, to which I referred in a previous letter, Professor Leubuscher, the director of the system of medical inspection of schools in Saxe-Meiningen, gave his views in an address delivered here a few days ago. In his opinion the objection that school physicians for the higher schools are superfluous, because in the better situated families a family physician is employed, is distinctly erroneous, as in his experience even in the higher schools diseases have been discovered by the school physicians which have escaped the notice of the parents and of the family physicians. Three defects especially are discovered in the higher schools: Shortsightedness, defective heart action and nervous and mental defects.

The first, as well as the third of these defects, is connected, according to Leubuscher, with school attendance and the consequent nerve strain. The pupils are overburdened. He claims that in order to attain the object of education the plan and methods of instruction, must be changed, the authorities cooperating with the school physicians. The classes should be arranged in the forenoon, so that the afternoon shall remain entirely free for the scholars' recreation and home work. It is further necessary to do away with the final test examination (Abiturienten-Examen). This change was demanded at the last congress for school hygiene by both physicians and educators. Weighing of graduates by the lecturer had shown that during the last six weeks before the examination they lost on an average three pounds in weight.

# Pharmacology

### Chemists' Certificates and Proprietary Medicines

Some time ago we pointed out that the chemists' certificate used by the exploiters of hydrocine, "hyperoxidized hydrocarbon," did not furnish a correct statement of the composition of this nostrum. Recently we noted that the chemist's analysis on the label for uriseptin did not correctly indicate the composition of that article.

The *Druggists' Circular*, October 19, editorially discusses the value which should be attached to chemists' certificates when used to exploit proprietary remedies. As an explanation of the disparity sometimes noted between the published analysis of proprietary medicines and the facts, a conversation overheard by the writer of the editorial is given. A manufacturer accosted a chemist, an old friend, in a breezy, hail-fellow-well-met way, and, during the conversation, incidentally remarked:

"By the way, professor, I'd like to have your certificate of analysis of my preparation."

"Certainly," said the professor, "I'd be glad to make an analysis for you, and I won't charge you much, either. Send me a package as soon as you like."

"Oh, never mind the price; I'll pay you well; and don't bother about the sample, either; I have a certificate of analysis here in my pocket" (producing it), "and all you need to do is to sign it."

The chemist looked straight into the eyes of the manufacturer for an embarrassing second, and then calmly informed him that he had selected the wrong man. The brazen manufacturer, not to be so easily silenced, retorted:

"Oh, come off, now; they all do it; you know they do, and you might just as well pocket the fee as to see it go to the next man."

Presumably the fat fee went into the pocket of the "next man," and no doubt the latter's name is now going all over the country in the advertisements attached to a certificate of purity which druggists and the public are expected to accept as if it were gospel.

As another kind of deception which tends to bring discredit to chemists' testimonials is mentioned the practice of publishing a certificate as to the quality of goods, written by a chemist who is connected with their manufacture, such connection being carefully concealed by the advertiser of the product. This form of deception has, as its counterpart, the practices of the manufacturer of proprietary remedies who has the degree of M.D. and who as a physician writes glowing articles as to the value of the remedy which he as a manufacturer sells to his "colleagues," the doctors.

### The Formula for Glyco-Thymoline

UPPER JAY, N. Y., Dec. 5, 1908.

*To the Editor:*—Will you please inform me where I can find the formula for Glyco-Thymoline? M. E. PROCTOR, M.D.

ANSWER: We can not! Had "a" formula instead of "the" formula been asked for, we could have referred to various advertisements of this preparation. For instance, in the *Boston Medical and Surgical Journal* we find "a" formula as follows:

| | |
|---|---|
| Sodium | 24 |
| Boric Acid | 4 |
| Benzoin | 4 |
| Acid Salicylic | 0.33 |
| Eucalyptol | 0.33 |
| Thymoline | 0.17 |
| Betula Lenta | 0.08 |
| Menthol | 0.08 |
| Pini Pumilionis | 0.17 |
| Glycerin and solvents | q. s. |

In the *Texas State Journal of Medicine* of the same date we also find "a" formula which varies to such an extent with other "formulas" that the editor of this journal, Dr. Chase, refused longer to carry the Glyco-Thymoline advertisement.

| | |
|---|---|
| Benzo-Salicyl. Sod. | 33.33 |
| Eucalyptol | 0.33 |
| Thymol | 0.17 |
| Salicylate of Methyl, from Betula Lenta | 0.16 |
| Pini Pumilionis | 0.17 |
| Glycerin and solvents | q. s. |

In the *New York Medical Journal* of December 5, there is "a" formula which is similar to the one in the Texas journal, except that it has added to it:

| | |
|---|---|
| Menthol | 0.08 |

Examination of the preparation in the chemical laboratory of the American Medical Association showed that it contained no boric acid, but instead borax; that salicylic acid was not present as acid, but as its sodium salt; that benzoin instead of being present in comparatively large quantities, was practically absent, and sodium benzoate was in its place; that the compound "benzo-salicyl. sod." was absent, and there was instead, a mixture of sodium benzoate and sodium salicylate.

The results obtained in the Association's laboratory are corroborated by the work of Dr. J. Kochs (*Apotheker-Zeitung*, 1907, xviii, 169). Dr. Kochs states that Glyco-Thymoline is an alkaline solution containing potassium carbonate, sodium benzoate, sodium salicylate, borax, thymol, menthol, glycerin and alcohol.

The published formulas, therefore, disagree, not only among themselves, but with the facts. When purchasing proprietary preparations with such fickle formulas, "you pay your money" for the preparation—"and take your choice"—of formulas.

# Correspondence

### The Medical Profession and John H. Rauch

CHICAGO, Dec. 19, 1908.

*To the Editor:*—I have read with a great deal of interest the communications from Dr. George Homan and Dr. J. F. Percy, appearing in THE JOURNAL, December 5 and December 12, paying tribute to the memory of John H. Rauch, and calling attention to the conspicuous work done by Dr. Rauch during the time of his connection with the Illinois State Board of Health. I was particularly impressed with the suggestion of Dr. Percy that the record of Dr. Rauch's great achievements be put in some permanent form by the Illinois State Medical Society, "of which he was an honorable and conspicuous member."

In their eulogies of Dr. Rauch, neither Dr. Homan nor Dr. Percy has exaggerated the importance of Dr. Rauch's work, nor the debt which the medical profession and the people of Illinois owe to him for the establishment of the sanitary, medical educational and public health affairs of Illinois on a sound foundation, and for the enactment and conscientious enforcement of the state's medical practice laws. The name of John H. Rauch was known, and the man revered, wherever the importance of sanitary science was appreciated, and it is very doubtful if the United States could have produced, at the time of the greatest activity of this noted sanitarian, a man who in his peculiar lines was his superior or even his equal.

But the recognition of meritorious service is frequently long delayed. The ingratitude of the people toward public servants is well-nigh notorious. The memorializing of the works of John H. Rauch by the medical profession or by the people of Illinois, comes so late, and is in such sharp contrast with the attitude toward him when he was serving the medical profession and the people, as to excite comment from those who are familiar with Rauch's career in public life.

Dr. Rauch has been dead for fourteen years. During his last few years he was crushed by the ingratitude of those he had so faithfully served. He died a broken-hearted man. According to the conventions of life, that was the time for memorials and for tributes; but even then they would have come too late to bring him consolation in the hour of his greatest need. The time for action by the people, by the medical profession, and by the Illinois State Medical Society, of which he was an "honorable and conspicuous member," was during the period when Rauch was being attacked and hounded by a thousand enemies, among the laity and the medical profession, too, enemies he made through his conscientious efforts to carry out the provisions of the medical practice act of Illinois

It is a matter of common knowledge that Dr. Rauch was forced from his place on the State Board of Health on account of his activities in enforcing the medical practice laws as he thought they should be enforced, and it is generally known that for the same reason, he was compelled to resign the secretaryship of the board. The attacks on Dr. Rauch were not made from ambush nor from under cover—the newspapers of the day (1889-1891) contained the details of the battle, and the people and the medical profession were fully advised as to what those opposing him proposed to do. Yet few voices were raised in Dr. Rauch's defense, and no organized effort was made to support him. Regardless of the splendid service he had rendered, forgetful of his personal sacrifices in money, time and health, his untiring zeal, his wonderful knowledge and his recognized ability, Rauch was permitted to be unseated and discredited, while the medical profession and the people constituted themselves as interested spectators, without even raising a cry for fair play. Nor is it satisfactorily shown that members of the medical profession were not to be found in considerable numbers among Dr. Rauch's persecutors.

I can not resist the conviction that, had the medical profession manifested the interest in Dr. Rauch's support in his time of trial that they now do in memorializing his virtues and his greatness, the people of Illinois could have continued to avail themselves of his masterly service and counsel, and his life might have been completed without its tragedy.

It is true, as pointed out by Dr. Homan and corroborated by Dr. Percy, that "Illinois has not yet, in recognition of Dr. Rauch, her adopted son, done the amende honorable." But by the same token, it is questionable whether it is the consensus of medical opinion of the present day that reparation is due to Rauch's memory, or whether his presence on the State Board of Health was as deeply felt by the entire medical profession as it now appears to Dr. Percy. Indeed, it is but a short time since a prominent officer of the Illinois State Medical Society stated, in an address before several members of that organization, that "the State Board of Health had never been in touch with the medical profession of Illinois at any time," while another officer, almost as prominent, declared, at the same meeting, that "the relation of the organized medical profession and the State Board of Health has never been close as it should be." It is to be lamented that there could not have been a spirit of cooperation between the organized medical profession and the State Board of Health at the time that Dr. Rauch was compelled to pay a severe penalty for having conscientiously performed his duty—for having remained steadfast in his purpose to bring about better medical conditions in Illinois.

I am heartily in sympathy with any movement to impress on the present generation the splendid pioneer work of Dr. Rauch. The memory of Rauch will live in the minds of the sanitarians and educators of the nation as long as the Illinois State Board of Health shall live, for it was to this organization that Dr. Rauch gave the best of his creative genius, his most serious thought and his most intelligent efforts.

GEORGE W. WEBSTER,
President Illinois State Board of Health.

## Illness of the Emperor of China

YALE MISSION HOSPITAL,
CHANGSHA, CHINA, Nov. 28, 1908.

*To the Editor:*—I send a translation of a document which has just come to hand, concerning the nature of the illness to which the late Emperor Kwang Hsu of China succumbed. It may be of interest to your readers to see the sort of statement that entirely satisfies the intelligent Chinese, and which would be an ample description of the objective symptoms in any given patient. How the failure to bring about the recovery of the emperor resulted for the attending physicians is reported in the newspapers which state that all the men whose names appear in the translated statement, "are degraded two steps in rank each, for having carelessly prescribed for his majesty the emperor," and in addition, five other physicians, all holding important medical posts in the government "are ordered to be cashiered for having carelessly prescribed for his majesty, but are allowed to remain at their posts to redeem their errors."

"THE ILLNESS OF HIS MAJESTY THE EMPEROR KWANG HSU OF CHINA.

"The Edict of the Empress Dowager of China, on the 21st day of the 10th moon, 34th year of Kwang Hsu [i. e., Nov. 14, 1908], declareth:

"Beginning with the early fall of last year, and from that time on, the imperial person was unwell, and I therefore commanded the Tartar generals, the viceroys and the governors of each province to endorse and recommend physicians of skill. Subsequently there were received communications from the Tartar generals, viceroys and governors of Chih-li, Liang-kiang, Hu-kwang, Kiang-su and Chekiang, which were followed by their sending with endorsements Ch'en Ping-chün, Ts'ao Yuan-heng, Lü Yung-pin, Chou Ching-t'ao, Tu Chung-chün, Shï Huan, Chang P'eng-nien, and others, who came to the capital to institute treatment But the remedies and treatment used by them have not been seen to be of avail as yet. Very recently, the yin and the yang principdes [i. e., the natural forces, yin being the female element and yang the male element in Nature] have again been failing and his entire being has become diseased. His chest is filled up (dyspnea); his stomach is refractory; his trunk and limbs have been sore and painful; his appetite has gradually failed; whenever he moved or turned, his respiration has been embarrassed and coughing induced. In addition, he has had feelings of numbness, cold and alternating feverishness; at night he has been unable to sleep; his spirits are utterly exhausted, and it is with difficulty that he continues to live at all.

"My heart has therefore been deeply concerned and even excited, and I again commanded the officials of all the provinces to pick out and recommend physicians of wide experience and training, whether holding official appointment or not, and to send them in great haste to the capital to attend his majesty and to institute treatment. If they had been able to accomplish any improvement, then I should have rewarded them in the highest degree, and also recognized with favor the kindness of those who recommended them.

"Let this be proclaimed widely as an imperial edict."

It is to be hoped that the new era which will be ushered in with the passing away of the remarkable woman, the Empress Dowager, will see new impulse given to the study of scientific medicine in China. The field is immense.

Allow me to add a word as to my personal appreciation of THE JOURNAL. I wish we had your help in the fight against "patent medicines" in China. It is a question whether or not the opium habit was much worse than the habit, now being contracted, of using limitless amounts of "patent medicine" with high-colored labels on the bottles and high-sounding words in the accompanying circulars.

EDWARD H. HUME.

## Defects of Esperanto as an International Language

NEW YORK, Dec. 8, 1908.

*To the Editor:*—A letter recently appeared in THE JOURNAL greatly extolling Esperanto. Please allow me, as an expert on this language, to present the other side of the question. Esperanto is not fit for an international language because it contains too many intrinsic defects.

1. The alphabet of Esperanto contains letters not possessed by any printing press and therefore rendering very expensive the publication of Esperanto works (ĉ, ĝ, ĥ, ĵ, ŝ). The use of an h instead of the "roof" is not genuine Esperanto and renders the language more hideous to the eye than it is now.

2. Esperanto, especially in every-day phrases, has an abominable sound due to the great frequency of the harsh sibilants (ĉ) and of the endings aj, oj, uj. Almost unpronounceable sounds (ĥ) and combinations (sc) also occur, such as *ĉio tio ĉi*, "all this"; *ĉiujn tiujn kiujn*, "all those whom."

3. Esperanto is very illogical in its word-formation. Here are a few examples: *Kuraĝa*, "courageous," forms the noun *kuraĝO*, "courage," while the similar adjective *brava*, "brave," derives the noun *bravECO*, "bravery." From the verb *kombi*,

"to comb," the instrument *kombILO*, "comb," is derived, while to the similar verb *brosi*, "to brush," belongs the noun *brosO*, "brush," as the instrument. *IrADO* from *iri*, to walk, means "continued walking," while fos*ADO* from *fosi*, "to dig," means "digging," without any idea of continuation or duration.

The philologic absurdities of Esperanto have been incontestably demonstrated by Dr. L. Couturat in his excellent study, "Etude sur la Derivation en Esperanto." The reader is referred to this work for other innumerable examples.

4. The vocabulary of Esperanto is lacking in internationality. The most frequently occurring words are entirely arbitrary and render the language unintelligible without previous study even to expert linguists, who read and understand other artificial languages almost at sight.

5. Esperanto is extremely poor in root words. This has led to the adoption of many idiotisms and of absurd compounds, as the verb *el-paroli*, which ought to mean "to speak out," but is used for "to pronounce."

6. Owing to the introduction of the accusative case with extremely frequent application, and to the declension of the adjective, which is changeable according to case and number, Esperanto is too difficult for persons of average education and especially of English nationality. Most Esperantists of this country, after having devoted several years to the study of Esperanto, are unable to write a few lines correctly or to speak the language.

That Esperanto is not fit for an international language has been proclaimed by the Committee of the Delegation for the Adoption of an International Auxiliary Language. This committee, composed of great scholars of international renown, convened at Paris in October, 1907, and rejected all artificial languages, Esperanto in its present form included. It adopted, however, a system presented by Marquis L. de Beaufront, the greatest authority on Esperanto, its inventor not excluded. This system, subsequently perfected and enlarged by the Constant Committee of the Delegation, is now known chiefly as Ilo, which means "international language" by its initial letters. Ilo is as much superior to Esperanto as the latter is to the defunct Volapük. It is not simplified Esperanto, for it has in common with the latter only a part of the conjugation, the ending of noun, adjective and adverb, and a few affixes. Everything else in Ilo is common to almost all modern artificial languages.

The New York Esperanto Society, the pioneer society in this country devoted to an international language, at its meeting of October, 1908, adopted Ilo, and at the November meeting the resolution was passed unanimously to assume the title "New York Ilo Society."

Evidently Esperanto is already undergoing the same fate as Volapük. But the Esperantists spread all kinds of false reports about Esperanto's "wonderful" growth. One "fidelulo" speaks of 55 Esperanto journals, not mentioning those that have long disappeared, as the *Medicina Revuo*, etc. Another relates that "Esperanto is taught in the public schools of many lands." Fortunately for their pupils, it is merely a dream. Two thousand people in the United States are said to be speaking Esperanto fluently and correctly. A dozen would have been an exaggeration, and these have adopted Ilo, etc. But even if all these reports were true, they would not prove anything, for Volapük could really show such successes, and yet it died because of intrinsic defects. Esperanto is following it into oblivion for similar reasons.

DR. MAX TALMEY.

Founder and first president of the New York Esperanto Society, now New York Ilo Society.

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### Dangers in Food Adulterations

PHILADELPHIA, Dec. 31, 1908.

*To the Editor:*—Food Inspection Decision 101, of the United States Department of Agriculture, states that "The department has not changed the position outlined in Food Inspection Decision 89. Pending the determination by the referee board of the wholesomeness or unwholesomeness of benzoate of soda, its use will be allowed under the following restrictions: Benzoate of soda, in quantities not exceeding 0.1 per cent., may be added to those foods in which generally heretofore it has been used. The addition of benzoate of soda shall be plainly stated on the label of each package of such food."

Food Inspection Decision 102 of the same department, signed by three cabinet officers, Messrs. Cortelyou, Secretary of the Treasury; Wilson, Secretary of Agriculture; and Strauss, Secretary of Commerce and Labor, states that "until further notice, vegetables greened with copper salts, but which do not contain an excessive amount of copper, and which are otherwise suitable for food, will be allowed entry into the United States, if the label bears the statement that sulphate of copper or other copper salts have been used to color the vegetables. Food Inspection Decision 92 is amended accordingly."

These decisions, as every practising physician must know, are fraught with great danger to the public health. There is considerable difference between the effects of any poison or irritant given in a few experiments in the laboratory, and those of the same poison taken continuously over long periods, even in small quantities.

I have not the slightest doubt that sodium benzoate (and especially the commercial of synthetic sodium benzoate) taken in foods more or less continuously, will derange digestion and set up irritative and degenerative changes in the gastro-enteric mucosa. Similarly, I have no doubt that copper salts will cause chronic nephritis and it is possible that pathologic changes in the blood and in the nerves may also be originated in this manner.

If the medical profession is to make its voice heard in defense of the public health, and if the Food and Drugs Act is not to be nullified by "interpretation," it is high time that a flood of indignant protests from medical men throughout the United States shall sweep in on the secretaries of the Treasury, of Agriculture, and of Labor and Commerce.

S. SOLIS COHEN.

[COMMENT: We heartily endorse the appeal of Dr. Cohen to the medical profession to protest against these decisions, which, we understand, were adopted against the protest of Dr. Wiley.—ED.]

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### Graduate Work in the Elementary Branches

*To the Editor:*—In common with thousands of other middle-aged practitioners, I have often felt the need and lack of up-to-date knowledge in the primary branches of medicine, viz.: chemistry, physiologic chemistry, histology, pathology, and bacteriology. Like others, I read and continue to buy the latest editions of books on practice, surgery, obstetrics, gynecology, dermatology, etc. We read and partially digest these works until we are satiated with fact and theory, and difference of opinion. But we are conscious all the time that our ground work in the fundamental principles of medicine is sadly deficient as we received it twenty or thirty years ago. Most of us are so situated that we can not take the time for a year's work at school as it would necessitate giving up practice for that length of time, which means a loss of a good portion of it.

Now, with the proper text-books, a good microscope, and a small home-fitted-up laboratory, it would be possible for physicians, in leisure moments, to dig out much information, and especially when two or three could work together and could enlist the cooperation of some younger colleagues. I believe that this work would be very interesting and profitable, much more so than going over and over the same old things in the so-called higher branches.

The first and most formidable objection is that nearly all the text-books used are too complicated and difficult for the class of men under consideration. If there were a series of books more elementary than those advertised in the medical journals, or if some competent teachers would recommend a set of books which might be read before taking up the larger works, many physicians would be glad to take up these studies in their leisure time. If THE JOURNAL A. M. A., which gives us almost everything else under the sun which we can utilize in practice, could help us along this line I believe that the profession would be greatly benefited.

H. F. BALLARD, M.D., Cullom, Ill.

# Book Notices

DISEASES OF THE NERVOUS SYSTEM. By Alfred Gordon, A.M., M.D., Associate in Nervous and Mental Diseases, Jefferson Medical College. Cloth. Pp. 487, with illustrations. Price, $2.50. Philadelphia: P. Blakiston's Son & Co., 1908.

Since Dr. Gordon insists in the preface that he is presenting a practical work for the man in general medical practice, it is fair to judge his book from this viewpoint. Now a practical book, as we conceive it, must definitely offer the reader a working knowledge of its subject—and there arises a difficulty in discussing diseases of the nervous system. The diagnostic signs and symptoms are so often complicated and variable, as the result of the intricate mechanism involved, that a short and so-called practical statement of the facts too often leads only to bewilderment in diagnosis and so defeats its own purpose. The two-page large-type statement of the clinical findings in multiple sclerosis, for instance is so entirely inadequate, especially in the light of the well-known fact that in the great majority of early cases there is no development of the series of symptoms which Dr. Gordon says is constantly present, that it, together with many other of his chapters, has little actual practical value. The practical thing in nervous diseases certainly is to diagnose early and correctly, and that can rarely be accomplished through neurologic short cuts. On the other hand, one finds passages that are not as correct as they might be. "It is a remarkable fact that an aphasic preserves the power of singing" (p. 113) is certainly not to be taken in the universal sense of Dr. Gordon's words. The whole chapter on aphasia is neither so clear nor so free from debatable points as the expressed aims of the author's preface would warrant. The statement (p. 209) that in Friedreich's ataxia "the knee-jerks are abolished, but Babinski's sign is present," would be very misleading to the general practitioner who might find a case in which the reverse was true. And again the same might be said of the unmodified statement (p. 250) that reactions of degeneration in the muscles are characteristic of progressive muscular atrophy. The entire story of electric reactions, both normal and pathologic, we are sure from comparison with other works, might be told much more clearly and succinctly. We are afraid that Dr. Gordon set himself an inordinately difficult task and that it still remains a fact that the larger works on nervous diseases are the most practical, especially for the man who knows least of the subject, and who therefore can not read between the lines.

A MANUAL OF OBSTETRIC TECHNIC. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital. Cloth. Pp. 253, with illustrations. Sixth Edition. Price, $1.25. Philadelphia: J. B. Lippincott Co., 1908.

This book is practical, especially that part dealing with normal labors. The author differs from many authorities, however, in advising Cesarean section as practically a last resort. It is generally acknowledged that Cesarean section offers better prospects for both mother and child than the mutilating operations. Cooke emphasizes the difficulties attending the operation and states that it is necessary to have four assistants and two trained nurses. As a matter of fact, even in country districts, there are more men capable of doing an abdominal operation, and of assisting at one, than there are men able to do difficult obstetric operations through the vagina without seriously injuring the mother, and it is unfortunate that this author advises every young physician to carry a basiotribe.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic at the Medical Faculty of Paris. Translated by A. J. Rosanoff, M.D., Second Assistant Physician, Kings Park State Hospital, N. Y. Second Edition. Cloth. Pp. 406. Price, $2.50. New York: John Wiley Sons, 1908.

This belongs to the class of handy manuals in which no elaborate attempt is made to cover and illustrate the subject in all its aspects, but rather to convey a concise yet comprehensive view of the main facts of mental disorders. The principal changes from the earlier edition, besides a general revision of the text and the author's additions in the second French edition, are an extract from Prof. Adolf Meyer's paper on dementia præcox, and a number of notes by the translator, one of which is a description of the technic of lumbar puncture.

The first chapter, on etiology, is fairly full, though the subject is not treated at too much length, and one cause at least, that plays a part in American statistics of insanity, namely, isolation, is not mentioned. The omission is the more notable, as this cause is mentioned by other French authors, such as Regis, as of some importance. The section on symptomatology is very satisfactory, and that on examination of patients even more so, for a work of this kind. While the plan of history-taking is offered as incomplete and subject to modification, as in fact all such schemes must be, it would, if adopted as to its general plan, give an excellent case history, far better than the usual asylum records afford. The translator's notes on psychotherapy and after-care are timely supplements to the section on treatment. Fursac adopts in the main the ideas of Kraepelin as to classification, though he admits that the syndrome of dementia præcox is a rather indefinite one, and he also holds to the French conception of systematized delusional insanity. The descriptions of the special forms of insanity recognized cover the subject as well as could be expected in a work of this compass. The references to European (especially French) literature are numerous, but those to English and American writers are few. This, however, is so common in continental works on psychiatry as scarcely to be considered remarkable.

The translator has done his work well, both in giving a readable translation and in the bracketed additions to the text. There seem to be very few typographical errors; one, however, may be mentioned as rather notable—the reference to "Thomas D. Quincy's" description of the euphoria of the opium-eater.

ESTIMATION OF THE RENAL FUNCTION IN URINARY SURGERY. By J. W. Thomson Walker, M.B., C.M. (Edin.), F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England. Cloth. Pp. 273, with illustrations. London: Cassell & Co., 1908.

The first part of this volume is devoted to the estimation of the total renal function. The symptoms of failure of renal functions are considered and the examination of the urine described. Not only are the old chemical methods considered and their value estimated but such physical methods as cryoscopy, electric resistance and surface tension are fully described and their value estimated by Walker's experience and by the recorded experience of others. Walker values the methylene blue test highly. He says: "This test, I believe, is one which is more trustworthy than the quantitative examination of the urea or the appearance of general symptoms of renal inadequacy." He also attaches value to the phloridzin test. Nevertheless, he discusses and appreciates fully the limitations of the tests. The book contains many brief records of cases supporting the conclusions reached. The second part treats of the estimation of the function of one kidney. The history of the various methods is given and the best are fully described and illustrated. This book is well written and well illustrated. The subject-matter is of great importance, not only to the operating surgeon, for whom it is especially written, but to the practitioner who is selecting cases for the surgeon. The whole subject is adequately and judicially considered.

SURGERY OF THE RECTUM. By Fred C. Wallis, B.A., M.D., B.C. Cantab., F.R.C.S., Surgeon to the Charing Cross Hospital. Cloth. Pp. 168. Price, $2.00 net. New York: William Wood & Co., 1907.

According to the author's preface this little book "is intended to present the surgery of the rectum of the present day in a practical and condensed form to young surgeons and practitioners, who are," Dr. Wallis believes, "now beginning to take a serious and practical view of the ailments of this part of the body." The book is in reality an exceedingly exclusive and dogmatic presentation of the surgery of the rectum according to the views of Dr. Wallis, and these are, in some instances, peculiar. In the first chapter we find anorectal ulceration described as the "cause of fissure in ano. It is the cause of all ischiorectal, pelvirectal, submucous and subtegumentary abscesses, and as a natural sequence, it is the cause of all fistulæ, which are, so to speak, the residue of these abscesses. All tubercular fistulæ and those extensive ulcera-

tions which proceed from them are due to the same cause." A little care in proofreading might have prevented the appearance of such paragraphs as the following: "Hemorrhage from the rectum is one of the worst forms of recurrent hemorrhage that occurs, because unless, sometimes, even when proper precautions have been taken, the hemorrhage continued steadily until quite an alarming amount of blood has been lost, and *suddenly* the patient shows signs of this and may rapidly die."

The statement on page 58 that the ultimate results of the ligature operation for hemorrhoids "are extremely good" is hardly consistent with that on page 62: "Recurrence is not an unusual thing after an operation by ligature. I do not say that if the operation is thoroughly carried out such a thing is likely, but in my own experience it is not uncommon for such recurrences to happen."

The book has a certain value, as has any report of personal experience, and parts of it are quite clear and to the point, but in view of the general carelessness of style, sweeping assertions and peculiar views on pathology displayed in its pages, it is not likely to take the place of any of the standard works on this subject.

A TEXT-BOOK OF BOTANY AND PHARMACOGNOSY. By Henry Kraemer, Ph.B., Ph.D., Professor of Botany and Pharmacognosy, and Director of the Microscopic Laboratory, in the Philadelphia College of Pharmacy. Third Edition. Cloth. Pp. 850, with illustrations. Price, $5.00. Philadelphia: J. B. Lippincott & Co.

That the second edition of this book, which appeared but a few months ago, is now followed by the third, shows that the book has met with general favor. Professor Kraemer is known as a scientist who is thoroughly practical, and so this book, while distinctly scientific, is yet of great value to those interested in the study of crude drugs. Professor Kraemer's ideas in this matter may be gained from the following incident: At a recent meeting there was under discussion the definition of the word "drug." Professor Kraemer, when asked how he defined this word to his classes, stated that he and his classes were too busy to bother with definitions, that they just studied the many drugs and this kept them so busy that no time for the study of definition was left. In view of the wide use of powdered drugs, a chapter on the recognition of powdered vegetable drugs and foods is of especial value. In this chapter a comprehensive scheme for the recognition of unknown drugs is given.

THE ART OF NATURAL SLEEP. By Lyman P. Powell, Rector of St. John's Church, Northampton, Mass. Cloth. Pp. 92. Price, $0.90. New York: G. P. Putnam's Sons, 1908.

The Emanuel Movement is responsible for a deluge of literature in the form of books, magazine articles and miscellaneous contributions to newspapers. While a lot of rubbish is appearing, a considerable portion of this literature is sensible and conservative, and therefore will do good rather than harm. Among the latter is this little book on insomnia and its treatment by suggestion. It is written for the layman; hence we ought not to expect to find—and do not find—in it much that relates to the basic physiologic facts underlying the cause of the condition when that cause is other than worry. The physician who has had fair, average experience in general practice will read of the remarkable cures recorded here with a sort of amusement—there are no failures, or practically none; it is all so very easy. Such a physician will realize the difference between treating those who come to one's library inspired with religious hope, emotional and receptive, and treating the average man and woman in the every-day frame of mind, and weighed down by great or petty care and discouragements.

LEITFADEN DER HYGIENE. Von Aug. Gärten, O. ö. Professor der Hygiene und Direktor des hygienischen Institutes der Universität Jena. Fifth Edition. Paper. Pp. 654, with illustrations. Price, 7.60 marks. Berlin: Verlag von S. Karger, 1909.

The fifth edition of this treatise retains the good points of the earlier editions and is well brought up to date. Gärtner's "Hygiene" is a good example of the compendious German handbook. It deals with all of the most important hygienic questions of the day and gives a well-balanced view of such problems as water-supply and sewage-disposal, the hygiene of dwellings, clothing and diet, school hygiene, industrial hygiene, and the infectious diseases. Gärtner is of opinion that bovine tuberculosis is not one of the most important sources of human infection. In the section on methods for isolating the typhoid bacillus no mention is made of the malachite green medium which many recent investigators have found especially useful. Gärtner does not lay as great stress on the rôle of house-flies in spreading typhoid fever as most recent writers on the epidemiology of typhoid have done. A valuable glossary by Dieudonné of terms used in current discussions of immunity concludes the volume.

THE AIR AND VENTILATION OF SUBWAYS. By George A. Soper, Ph. D., Member of American Society of Civil Engineers. Cloth. Pp. 244, with illustrations. Price, $2.50. New York: John Wiley & Sons, 1908.

This volume is the outgrowth of studies carried on by Soper on the air of the New York subway. It includes a discussion of the characteristics of good air and bad air, the bearing of subways on health, methods of ventilating subways, the air of European subways, and especially the air of the New York subway and the health of New York subway employés. It is in the main clearly and accurately written, and is a valuable contribution to the subject of which it treats. Occasionally a somewhat loose statement is noted, as on page 77, where the death rate among the employés in a London subway is compared with the death rate for the whole London population. Soper concludes his own thorough study of the conditions in the New York subway with the statement that the most objectionable feature of the air was the dust, which consisted chiefly of angular particles of iron. No direct injurious influence, however, on the health of the employés could be traced, perhaps because the subway had been in operation but a short time when Soper's observations were made.

CLIMATIC TREATMENT OF CHILDREN. By Frederick L. Wachenheim, M.D., Chief of Clinic, Children's Department, Mount Sinai Hospital Dispensary, New York. Cloth. Pp. 400. Price, $2.50. New York: Rebman Co., 1907.

We are not aware that there is as yet any other treatise on this subject; the present work is a worthy pioneer. Wachenheim has condensed a vast amount of information on the important subject of climate into a manual which will prove generally serviceable to others as well as to the pediatrist. A general bibliography, a list of authors quoted and a carefully detailed index add materially to the value of the book.

USE AND CARE OF THE MICROTOME. Bausch & Lomb Optical Co., Rochester, N. Y. Paper. Pp. 32. For gratuitous distribution.

This little booklet is worth the attention of the user of the microtome. The descriptive matter and the advice are interesting and valuable.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

### ADDRESSES OF FOREIGN WRITERS ON DEMENTIA PRÆCOX

MARION, OHIO, Dec. 26, 1908.

*To the Editor:*—1. I am desirous of learning the correct names and addresses of the following men: A. Gialelli, Kraepelin, Stransky, Freud, Bleuler, Neisser, Masselon, Meyer, Marro. All these men have written on the subject of dementia præcox and I am anxious to communicate with them.

2. Is there any directory which will give me the addresses of foreign physicians who are quoted in American journals?

CARL W. SAWYER.

ANSWER.—1. The following are some of the addresses desired:

Dr. A. Giannelli, Manicomio di S. Maria della Pieta, Rome, Italy.

Adolph Meyer, Pathological Institute, Office, Ward's Island, New York City.

Dr. E. Kraepelin, University of Heidelberg, Germany.

Dr. S. Freud, University of Vienna, Austria.

Dr. E. Bleuler, University of Zurich, Switzerland.

Dr. E. Stransky, I psychiatrische Klinik, Vienna, Austria.

Dr. R. Massalongo, University of Padua, Italy.

Marro, we are unable to identify. Antonio Marro has written on psychiatry. A letter would probably reach him through his latest publisher, Schleicher frères, Paris.

2. The addresses of authors are given in the foreign journals as in those of the United States. Lacking this information, one will find of service the following books (obtainable through any bookseller who handles foreign works):

*"Biographisches Lexikon,"* published for $8.00 net, by Urban and Schwarzenberg, 38 Dorotheenstrasse, Berlin, N. W., Germany.

*"Minerva Jahrbuch der Gelehrten Welt,"* by Dr. Karl J. Trübner, Strassburg, Germany; price, $3.50.

*"Spemanns goldenes Buch der Gesundheit,"* published by W. Spemann, Berlin.

For an occasional communication one may enclose a letter to one of the scientific information bureaus in Berlin or Paris, enclosing an international exchangeable postage stamp coupon, requesting the bureau to forward the letter to the addressee. One should give sufficient information for the identification of the one it is desired to reach. THE JOURNAL occasionally receives such a letter from abroad with the request that we supply the address and forward it. The information bureaus referred to are:

*Die ärztliche Auskunftei im Kaiserin Friedrich-Hause,* 2 Luisenplatz, Berlin, N. W., Germany.

*Bureau de renseignements scientifiques, à la Sorbonne,* Paris, France.

Both have been written up in the news columns, the latest description having appeared Oct. 3, 1908, page 1167.

## CORSET FOR GASTROPTOSIS—NO-LOOP METHOD FOR GASTROENTEROSTOMY

HOLLYWOOD, CALIF., Dec. 6, 1908.

*To the Editor:*—1. Please describe Landau's corset and pad attachment for gastroptosis referred to in Boas' "Diseases of the Stomach," page 343.

2. Where can I find a description of the no-loop method of gastroenterostomy referred to by Dr. Mayo in THE JOURNAL, Aug. 15, 1908, page 557? A. B. C.

ANSWER.—1. Boas' "Diseases of the Stomach" gives the following descripton of Landau's and Bardenhauer's abdominal corset: The abdominal corset advanced by Landau and more or less suitably modified by others . . . . consists of a heart-shaped tin plate which carries two springs connecting with an elastic belt. Practicable and applicable for all forms of displacement of abdominal organs is Bardenhauer's bandage. It consists of two springs enclosing the crests of the ilium and finding there support and resting place. These are connected at the symphysis by a spring. From this there radiate broad pieces of metal or whalebone inserted in the linen, leather or rubber parts of the band which are protected at the upper end with a belt. The appliance may be procured from dealers in instruments.

2. Dr. Mayo's no loop method of gastroenterostomy was described in THE JOURNAL, Sept. 22, 1906, p. 912.

## INFORMATION REGARDING TEACHERS ABROAD

OAKLAND, CALIF., Dec. 5, 1908.

*To the Editor:*—Can you give me the names and addresses of men in charge of clinics in London, Paris, Berlin and Vienna, with whom I may communicate regarding postgraduate work?

J. L. LOHSE.

ANSWER.—Write to the following men in London, and to the officers of the Anglo-American Medical societies on the continent:

London: Secretary of the London Post-Graduate Association, West Wing, Examination Hall, Victoria Embankment, London.

Dean of the Northeast London Postgraduate College, Tottenham, London, N.

Dean of the West London Postgraduate College, Hammersmith Road, London, W.

Paris: Dr. Leonard Robinson, honorary secretary and treasurer of the Continental Anglo-American Medical Society, 1 Rue d' Agnesseau, Paris, France.

Berlin: Dr. James H. Honan, President of the Anglo-American Medical Association, 73 Lutzöwstrasse, Berlin.

Vienna: Anglo-American Club Café Polyclinica, opposite Allg. Krankenhaus, Vienna.

## ILLUMINATION OF THE EYE

MICHIGAN CITY, IND., Nov. 3, 1908.

*To the Editor:*—I am conducting some experiments in both retinoscopy and ophthalmoscopy, and ask: Should the relative situation (both distance and angle) of lamp and mirror in indirect retinoscopy and ophthalmoscopy ever be changed?

FREDERICK BOOTH.

ANSWER.—In indirect ophthalmoscopy the position of the light and the angle of reflection are immaterial so long as one is able to obtain the red reflex. The distance of the mirror from the eye, will, of course, depend on the refraction of the eye. In any event, both should be so placed as to obtain the clearest image of the fundus. In retinoscopy, the case is somewhat different; much depends on whether a plane or a concave mirror is used. If a concave mirror, the light should be placed just above the patient's head, and the examiner should sit directly in front of the patient at a constant distance of three feet. When using the plane mirror it is conducive to the best results to have the source of light as near the mirror as possible in order to obtain the greatest intensity of illumination. Since, however, the rays of light are always reflected in a direct line from a plane mirror regardless of the distance between the patient and the examiner, it is really immaterial what this distance is. In any case the angle of reflection need not be taken into consideration.

# Association News

## NEW MEMBERS

List of new members of the American Medical Association for the month of December, 1908:

### ALABAMA

Springfield, T. J., Ensley.

### ARIZONA

Beauchamp, H. K., Phoenix.

### ARKANSAS

Bean, W. B., LaGrange.
Johnston, O. J. T., Floral.
Scott, F. M., Paragould.

### CALIFORNIA

Friedlander, David, San Francisco
Lucchetti, V. F., San Francisco.
Thompson, E. E., Sisson.
Weber, P. H., Winthrop.

### COLORADO

Lockard, L. B., Denver.
Moses, Homer C., Colorado Springs.
Perkins, P. H., Colorado Springs.
Tucker, Bernley, Colorado Springs.

### DISTRICT OF COLUMBIA

Greene, W. P., Washington.
Pyles, R. A., Anacostia.
Reede, E. H., Washington.

### FLORIDA

McDuffee, T. M., Manatee.

### GEORGIA

Ansley, W. S., Decatur.

### ILLINOIS

Brandon, P. E., Chicago.
Dieckmann, Ernest, Herrick.
Estel, G. A., Jacob.
Ewing, J. B., Chicago.
Hays, L. M., Chicago.
Hunter, A. H., Staunton.
Kittermann, P. G., Chicago.
Lederer, Arthur, Chicago.
Montgomery, C. S., Stockland.
Morrill, E. S., Chicago.
Parsche, T. W., Chicago.
Taylor, J. L., Springfield.
Van Hageman, Silas, No. Chicago.
Waterman, A. H., Chicago.

### INDIANA

Carter, Amos, Plainfield.
Custer, A. T., Linton.
Fosler, D. W., Indianapolis.
Gordon, C. W., Ft. Wayne.
Harper, W. Q., Seymour.
Kessinger, W. V., Sandborn.
Miller, L. C., Twelve Mile.
Murphy, M. G., Morgantown.
Myers, C. L., Covington.
Robard, E. E., Shelburn.
Robinson, F. C., Martinsville.
Told, H. J., Florence.
Wells, G. M., Indianapolis.
Whiting, U. G., New Harmony.

### IOWA

Leonard, A. H., Mitchellville.
Middleton, G. M., Davenport.

### KANSAS

Miner, E. A., Independence.

### KENTUCKY

Creech, C. B., Middleburg.
Edwards, D. S., Ludlow.
Garvin, M. L., Horse Cave.
Grasser, E. T., Louisville.
Gunn, J. S., Adairville.
Hill, J. W., Frankfort.
Kercheval, C. K., Ashland.
Martin, W. W., Reynolds Sta.
O'Hara, C. D., Williamstown.
White, W. C., Louisville.

### LOUISIANA

Brock, J. L., Franklinton.

### MARYLAND

Barnes, F. M., Jr., Towson
Goldsborough, W. W., Greensboro.
Hooker, D. R., Baltimore.
Knight, L. W., Baltimore.

### MASSACHUSETTS

Bossidy, J. C., Boston.
Coffin, F. H., Haverhill.
Cutter, I. T., Boston.
Dascombe, O. L., Waltham.
Derrick, J. S., So. Groveland.
Howland, G. L., Boston.
Vrooman, E. M., Cummington.

### MICHIGAN

Allen, T. R., Ionia.
Benson, J. C., Flint.
Bradley, H. N., Bay City.
Campbell, D. A., Detroit.
Corney, E. J., Durand.
Curtiss, W. L., Benton Harbor.
Davison, R. J., St. Louis.
Felshaw, C. P., Holly.
Freeland, O. H., Mason.
Gale, H. M., Bay City.
Gardiner, S. E., Mt. Pleasant.
Gould, Jefferson, Fenton.
Hill, H. C., Benton Harbor.
Jenne, B. H., Otisville.
Kelly, C. M., Grand Rapids.
Lee, F. J., Grand Rapids.
MacNaughton, P. D., Calumet.
McKinzie, J. C., New Buffalo.
Parker, I. E., Dryden.
Perry, H. E., Newberry.
Rothschild, Douglas, Rockland.
Scott, W. A., St. Johns.
Shaw, R. G., Detroit.
Sibley, H. A., Pontiac.
Sprague, W. B., Palmyra.
Taylor, W. H., Flint.
Westgate, C. H., Weston.
Whitmore, R. C., Quincy.
Wiley, F. C., Pinneboy.

### MINNESOTA

Blanchard, H. G., Waseca.
Dougherty, J. P., Wabasha.
Johnson, C. H., Austin.

### MISSISSIPPI

Chilton, C. M., Gunnison.
Glass, S. W., Dublin.
Welch, B. Z., Wool Market.

### MISSOURI

Anderson, J. N., Conway.
Kimbrough, J. S., St. Louis.
Lyman, H. W., St. Louis.
Moore, W. L., Truxton.

### MONTANA

Anderson, A. E., Butte.
Shore, W. B., Gardiner.

NEBRASKA

Decker, R. F., Byron.
Swoboda, F. J., Jr., Brainard.

NEVADA

Hamilton, G. B., Reno.
West, F. M., Lovelock.

NEW HAMPSHIRE

Buckley, J. J., Milton.

NEW JERSEY

Granelli, M. S., Hoboken.
Lindenbaum, Henry, Hoboken.
Mathews, W. J., Hoboken.
Pindar, D. B., Hoboken.
Spath, G. B., Hoboken.

NEW YORK

Adelson, Jonas, New York City.
Fisher, R. H., Spencer.
Geis, N. P., Brooklyn.
Harrigan, A. H., New York City.
Hirschfield, Cilie, New York City.
McKeown, Patrick, Long Island City.
Schermerhorn, J. R., Schenectady.
Schloss, O. M., New York City.
Shaul, J. W., Keuka Park.
Spalding, A. M., New York City.
Squires, C. A., Binghamton.

NORTH DAKOTA

Clark, Ira D., Harvey.

OHIO

Biggs, A. L., Lorain.
Fall, H. V., Custar.
Groschner, C. B., Toledo.
Hayford, H. S., Cleveland.
Jacob, N. F., Whitehouse.
Jacoby, G. W., Savannah.
Loewenthal, Noritz, Cleveland.
Parker, C. B., Gallipolis.
Penberthy, J. P., Bryan.
Semans, E. M., Delaware.
Vigor, W. C., Plain City.
Whisler, R. D., Benton Ridge.

OKLAHOMA

Murdoch, L. H., Okeene.

PENNSYLVANIA

Alexander, I. Hope, Pittsburg.
Bandy, E. R., Philadelphia.
Brinkmann, Leon, Philadelphia.
Coulter, J. C., Mosiertown.
Dale, P. H., Center Hall.
Davidson, A. J., Philadelphia.
Davidson, W. J., McKees Rocks.
Dubbs, R. L., Philadelphia.
Steel, J. M., Huntington.
Stout, P. S., Philadelphia.

TENNESSEE

Eblen, W. H., Wind Rock.
Hibbitts, J. B., Union City.
Meredith, A. O., Pikeville.
Patton, E. W., Litton.

TEXAS

Brown, W. D., Texla.
Hamilton, W. S., San Antonio.
Hays, A. R., Ft. Worth.
Nichols, P. C., Sylvester.
Russell, P. S., Batson.
Walker, J. H., Sylvester.

UTAH

Calderwood, W. R., Salt Lake City.
Logan, Z. G., Ophir.
Smedley, R. C., Salt Lake City.
Smith, R. J., Collinston.
Wilcox, C. F., Salt Lake City.

VIRGINIA

Frazer, J. D., Za.
Watts, S. H., Charlottesville.

WASHINGTON

Edwards, J. W., Port Townsend.
Lind, C. O., Seattle.
Newell, R. I., Spokane.
Prencel, J. E., Spokane.

WEST VIRGINIA

Jackson, J. A., Ronceverte.
Robertson, G. C., Clendenin.
Snyder, O. H., Edgarton.

WISCONSIN

Coon, G. E., Milton Junction.

WYOMING

Phifer, F. W., Wheatland.

# The Public Service

## Army Changes

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 2, 1909:

Hartnett, E. H., capt., granted leave of absence for 4 months, with permission to return to the U. S. via Europe.

Lewis, W. F., major, granted an extension of 10 days to his leave of absence.

Hart, W. L., first lieut., granted leave of absence for 10 days.

Humphreys, H. G., capt., granted leave of absence for 7 days.

Reasoner, M. A., first lieut., ordered from San Francisco, to Fort Caswell, N. C., for duty.

Davidson, W. T., capt., sailed from San Francisco, for Manila, P. I., returning from leave of absence in U. S.

Pinkston, O. W., first lieut., granted leave of absence for 7 days.

Rhoads, T. L., capt., leave of absence extended 2 months.

Faultleroy, P. S., major, ordered to Ft. Benjamin Harrison, Ind., for duty, on return from Cuba.

Church, J. R., major, ordered to rejoin proper station, Ft. Robinson, Neb., on return from Cuba.

Allen, J. H., capt., ordered to Ft. Monroe, Va., for duty on return from Cuba.

Bevans, J. L., capt., ordered to A. G. H., San Francisco, for duty with Co. B, H. C., on return from Cuba.

Thomason, H. D., capt., ordered to Ft. Douglas, Utah, for duty on return from Cuba.

Tefft, W. H., capt., ordered to Ft. Baker, Cal., for duty on return from Cuba.

Hartsock, F. M., major, ordered to Ft. Meade, S. D., for duty on return from Cuba.

Johnson, R. W., major, ordered to St. Louis to take charge of the medical supply depot at that city, on return from Cuba.

Lemmon, Robert, M. R. C., when relieved from duty at Ft. Caswell, N. C., ordered to Ft. Howard, Md., for duty.

Tyler, G. T., M. R. C., ordered from Ft. Jay, N. Y., to Ft. H. G. Wright, N. Y., for temporary duty.

Anderson, E. A., M. R. C., ordered to accompany Third squadron, Fifth cavalry, from Ft. Wingate, N. M., to San Francisco.

## Navy Changes

Changes in the Medical Corps, U. S. Navy, for the week ending Jan. 2, 1909:

Riggs, R. E., P. A. surgeon, detached from duty with marines in Cuba and ordered home to wait orders.

Biello, J. A., asst.-surgeon, detached from duty with Pacific fleet, and ordered to duty at the Naval Hospital, Mare Island, Cal.

Duhigg, J. T., asst.-surgeon, detached from the Navy Yard, Mare Island, Cal., and ordered to duty with the Pacific Torpedo Fleet.

Lowndes, C. H. T., surgeon, orders to the Navy Yard, Mare Island Cal., revoked; ordered to continue treatment at the Naval Medical School Hospital, Washington, D. C.

Kindleberger, C. P., surgeon, ordered to the Navy Yard, Mare Island, Cal., and to additional duty in command of the naval medical supply depot.

## Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Dec. 30, 1908:

Brooks, S. D., surgeon, granted 15 days' leave from Dec. 26, 1908, on account of sickness.

Stimpson, W. G., surgeon, detailed as member of a revenue cutter service retiring board at Port Townsend, Wash., Jan. 9, 1909.

Oakley, J. H., P. A. surgeon, detailed as member of a revenue cutter service retiring board at Port Townsend, Wash., Jan. 9, 1909.

Cofer, L. E., P. A. surgeon, granted 7 days' leave from Dec. 24, 1908.

Grubbs, S. B., P. A. surgeon, on expiration of leave, to proceed to San Juan, Porto Rico, for duty as chief quarantine officer, relieving Passed Assistant Surgeon M. H. Foster.

Foster, M. H., P. A. surgeon, on being relieved by Passed Assistant Surgeon S. B. Grubbs, to proceed to New York, and report to the chief medical officer, Ellis Island Immigration Station, for duty.

Foster, A. D., P. A. surgeon, granted 11 days' leave from Dec. 23, 1908.

Collins, G. L., P. A. surgeon, granted 1 day leave, Dec. 27, 1908.

Sweet, Ernest A., P. A. surgeon, directed to proceed to Boston, and report to medical officer in command for temporary duty.

Fauntleroy, Charles M., asst.-surgeon, relieved from duty at Marine-Hospital, New Orleans, and directed to proceed to New Orleans Quarantine Station for duty and assignment to quarters.

Preble, Paul, asst.-surgeon, orders directing him to report to medical officer in command at Baltimore, revoked. Directed to proceed to Stapleton, N. Y., and report to the medical officer in command for duty and assignment to quarters.

Bowers, Paul E., acting asst.-surgeon, granted 7 days' leave from Dec. 25, 1908.

Wright, F. T., acting asst.-surgeon, granted 5 months' leave from Dec. 23, 1908, without pay.

## Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Jan. 1, 1909:

SMALLPOX—UNITED STATES

Arkansas: Texarkana, Nov. 22-28, 3 cases.
California: Los Angeles, Dec. 5-12, 1 case; San Francisco, Dec. 12-19, 1 case.
Illinois: Belleville, Dec. 13-20, 3 cases.
Indiana: Lafayette, Dec. 19-21, 1 case, 1 death.
Kansas: Topeka, Dec. 5-12, 7 cases.
Maine: Canadian Border, Dec. 12, present.
Mississippi: DeSoto, Nov. 1-Dec. 22, 135 cases.
Montana: Nov. 24-Dec. 15, 9 cases.
New Hampshire: Hinsdale, Dec. 23, 6 cases; West Chesterfield, 1 case; Westmoreland, 1 case.
Ohio: Cincinnati, Dec. 11-18, 5 cases.
Texas: Gonzales County, Oct. 1-19, present; Laredo, Dec. 26, 2 cases; San Antonio, Nov. 28-Dec. 19, 6 cases.
Washington: Spokane, Dec. 5-12, 1 case.
Wisconsin: LaCrosse, Dec. 5-19, 4 cases; Manitowoc, Dec. 12-19, 4 cases; Milwaukee, Nov. 21-28, 3 cases.

SMALLPOX—FOREIGN

Algeria: Algiers, Nov. 1-30, 20 deaths.
Brazil: Bahia, Oct. 31-Nov. 14, 51 cases, 2 deaths; Santos, Oct. 1-31, 26 cases, 11 deaths.
Canada: Kingston, Dec. 5-12, 2 cases.
Ceylon: Colombo, Nov. 1-7, 25 cases, 4 deaths.
China: Shanghai, Nov. 14-21, present.
France: Marseilles, Nov. 1-30, 1 death; Nantes, Nov. 22-29, 2 cases; Paris, Nov. 21-Dec. 5, 6 cases, 1 death.
Italy: Florence, Nov. 23-30, 2 cases.
Java: Batavia, Oct. 3-10, 2 cases; Nov. 1-14, 2 cases.
Malta: Nov. 21-28, 1 case on ship.
Portugal: Lisbon, Nov. 28-Dec. 25, 1 case.
Russia: Riga, Nov. 28-Dec. 5, 3 cases; St. Petersburg, Nov. 17-24, 6 cases, 4 deaths.
Spain: Barcelona, Nov. 27-Dec. 5, 3 deaths.

YELLOW FEVER

Barbados: Dec. 29, 2 cases, 2 deaths.
Brazil: Bahia, Oct. 31-Nov. 6, 1 death; Manaos, Nov. 21-28, 2 deaths.
Ecuador: Guayaquil, Nov. 21-28, 2 deaths.
Martinique: Fort de France, Nov. 21-28, 2 cases, 1 death.
Mexico: Itzincal, Dec. 6-12, 2 cases, 2 deaths; Maxcanu, 2 cases, 1 death; Merida, 3 cases, 1 death; Vera Cruz, 3 cases.

CHOLERA

India: Rangoon, Nov. 7-14, 6 deaths.
Russia: General, Nov. 7-14, 419 cases, 189 deaths.

PLAGUE

Australia: Brisbane, Nov. 1-7, 1 case.
Brazil: Bahia, Oct. 30-Nov. 14, 3 cases, 7 deaths; Rio de Janeiro, Nov. 8-15, 7 cases, 3 deaths.
Ecuador: Guayaquil, Nov. 21-28, 1 death.
Egypt: General, Nov. 1-21, 7,416 cases, 5,569 deaths; Bombay, Nov. 18-24, 5 deaths.
Indo-China: Cholen, Oct. 18-24, 5 cases, 5 deaths.
Turkey: Bagdad, Nov. 7-14, 4 cases, 1 death.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

ARKANSAS: Little Rock, Jan. 12. Secretaries: Regular, Dr. F. T. Murphy, Brinkley; Homeopathic, Dr. P. C. Williams, Texarkana; Eclectic, Dr. A. J. Widener, Little Rock.

DISTRICT OF COLUMBIA: Washington, Jan. 12. Sec., Dr. George C. Ober, 210 B. St., S. E.

ILLINOIS: Coliseum Annex, Chicago, Jan. 18-20. Sec., Dr. J. A. Egan, Springfield.

NEW MEXICO: Santa Fe, Jan. 11. Sec., Dr. J. A. Massie.

OKLAHOMA: Chickasha, Jan. 12. Sec., Dr. Frank P. Davis, Enid.

SOUTH DAKOTA: Sioux Falls, Jan. 13-14. Sec., Dr. H. E. McNutt, Aberdeen.

VERMONT: Montpelier, Jan. 12-14. Sec., Dr. W. Scott Nay, Underhill.

WISCONSIN: Milwaukee, Jan. 12-14. Sec., Dr. J. V. Stevens, Jefferson.

### Medical Education and Nostrums, Second Letter

The following is the second of a series of letters issued jointly by the Council on Medical Education and the Committee on Medical Teaching of the Council on Pharmacy and Chemistry:

*To Medical Teachers:*—This letter treats of the conditions which, with your aid, we seek to remedy.

The prescribing of secret or semisecret remedies, pharmaceutical "specialties," and other mixtures of various types under fanciful names has become quite general. This thoughtless practice has led, directly and indirectly, to numerous and most serious evils. We would call your attention to the following:

*Ignorant, Biased and Irresponsible Instruction:* The physician has largely abandoned to pharmaceutical manufacturers his privilege and duty of prescribing. These manufacturers have gradually come to presume to advise us in therapeutics as well as in materia medica. It is obvious that such advice is not disinterested, and that it therefore is unreliable.

*Therapeutic Progress Impossible:* So long as the experience of clinicians is mainly restricted to nostrums of which they know little beyond the highly colored prospectuses of the manufacturers, therapeutics can not advance.

*False Security:* Dangerous drugs have been lauded by nostrum-makers under euphonious names which are not at all suggestive of their potent ingredients, and the physician is thus beguiled into the use of excessive amounts of dangerous and habit forming substances. Chloral, under the name of Bromidia; Acetanilid in the guise of Antikamnia, and many other poisons, are thus often used in dangerous, if not fatal doses, such as no careful physician would prescribe under their official names. With new products, manufacturers emphasize claims of superior safety which often do not survive a more extended experience. Heroin, Atoxyl and Isopral point a lesson worth learning.

*Self-Medication:* The prescribing of nostrums leads almost inevitably to self-medication. The patient usually learns the name of the nostrum prescribed, and thereafter buys it without further medical advice, and recommends it to his acquaintances who suffer from similar symptoms. The whole sequence of evils, of imaginary diseases, neglected ailments, drug addictions, and fatal poisoning, etc., follows in natural order. The layman hesitates to tamper too much with a genuine prescription, but he has not the same wholesome fear of a ready-made preparation. Many of the so-called "patent medicines" of to-day were originally "ethical." Their use has been popularized by physicians.

Pseudoscience, arrest of progress, direct and indirect danger to the patients—these are the main evils with which the medical profession is confronted.

### Indiana October Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination reports the written examination held at Indianapolis, Oct. 27-29, 1908. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 59, of whom 53 passed and 6 failed. Nine reciprocal licenses were granted at this examination. The following colleges were represented:

PASSED

| College. | Year Grad. | Per Cent |
|---|---|---|
| George Washington Univ. | (1907) | 88 |
| Hering Med. Coll. | (1908) | 90 |
| Rush Med. Coll. | (1894) 80; (1908) | 92 |
| College of P. and S., Chicago | (1908) | 82, 89 |
| Chicago Coll. of Med. and Surgery | (1908) | 80, 83, 86, 87 |
| Northwestern Univ. Med. School | (1908) | 82, 85 |
| Illinois Med. Coll. | (1908) | 75 |
| Hahnemann Med. Coll., Chicago | (1908) | 83, 83 |
| Indiana University | (1908) | 79 |
| Medical Coll. of Indiana | (1904) | 85 |
| Louisville and Hosp. Med. Coll. | (1908) | 75, 79, 80, 83, 83, 85, 90, 91 |
| University of Louisville | (1908) | 85, 86, 87, 87, 89, 89, 90 |
| Kentucky School of Med. | (1907) 89; (1908) | 77, 81, 83, 90, 90 |
| Kentucky University | (1906) | 85, 90 |
| Hospital Coll. of Med., Louisville | (1907) | 86 |
| Louisville National Med. Coll. | (1908) | 89 |
| University of Michigan | (1908) | 83, 88, 90 |
| University and Bellevue Hosp. Med. Coll. | (1908) | 94 |
| Western Reserve University | (1908) | 86 |
| Medical College of Ohio | (1908) | 89 |
| Miami Med. Coll. | (1906) | 84, 90 |
| Eclectic Med. Institute, Cincinnati | (1908) | 81 |
| Medico-Chirurgical College, Philadelphia | (1906) | 91 |
| Jefferson Med. Coll. | (1863) | 81 |

FAILED

| College. | Year Grad. | Per Cent |
|---|---|---|
| Jenner Med. Coll. | (1907) | 68 |
| Eclectic Med. Coll. of Indiana | (1908) | 56 |
| Louisville and Hosp. Med. Coll. | (1908) | 72 |
| Kentucky School of Med. | (1907) | 71 |
| University of Louisville | (1908) | 60 |
| St. Louis Coll. of P. and S. | (1907) | 63 |

LICENSED THROUGH RECIPROCITY

| College. | Year Grad. | Reciprocity with |
|---|---|---|
| Colorado School of Med. | (1895) | Kansas |
| Bennett Coll. of Ecl. Med. and Surg. | (1907) | Illinois |
| College of P. and S., Chicago | (1899) | Wisconsin |
| Rush Med. Coll. | (1897) | Minnesota |
| Kentucky School of Med. | (1906) (1907) | Kentucky |
| Medical School of Maine | (1897) | New Hamp. |
| University of Michigan | (1906) | Michigan |
| Meharry Med. Coll. | (1901) | W. Virginia |

### Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 2-3, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Five reciprocal licenses were issued at this examination. The following colleges were represented:

PASSED

| College. | Year Grad. | Per Cent. |
|---|---|---|
| Cooper Med. Coll. | (1906) | 89.5 |
| College of P. and S., San Francisco | (1908) | 89.5 |
| California Med. Coll., Eclectic | (1903) | 82 |
| College of P. and S., Los Angeles | (1908) | 79.5 |
| Western Reserve University | (1886) | 87.8 |
| University of Zurich, Switzerland | (1902) | 84 |

LICENSED THROUGH RECIPROCITY

| College. | Year Grad. | Reciprocity with |
|---|---|---|
| Rush Med. College | (1900) | Wisconsin |
| Central Coll. of P. and S., Indianapolis | (1897) | Indiana |
| Minneapolis Coll. of P. and S. | (1897) | Minnesota |
| College of P. and S., Baltimore | (1896) | Minnesota |
| College of P. and S., New York City | (1871) | Iowa |

### Rhode Island November Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Nov. 5-6, 1908. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 13, of whom 9 passed and 4 failed. The following colleges were represented:

PASSED

| College. | Year Grad. | Per Cent. |
|---|---|---|
| Yale University | (1906) 80; (1907) | 84.3 |
| Baltimore Med. Coll. | (1908) | 83.1 |
| Harvard Medical School | (1907) 84; (1908) | 83.8, 90.3 |
| Dartmouth Medical School | (1888) | 80 |
| Cornell University Med. Coll. | (1903) | 92.4 |
| University of Pennsylvania | (1905) | 89 |

FAILED

| | | |
|---|---|---|
| Baltimore Med. Coll. | (1907) | 69.1, 74.8 |
| Tufts Coll. Med. School | (1908) | 77 |
| Laval University, Quebec | (1905) | 53* |

* Did not complete examination.

# Miscellany

**Method for Determining Age of a Blood Spot.**—In a communication in the *Archives Gén. de Médecine*, March, 1908, A. Lecha-Marzo confirms the assertion of A. Florence that a drop of blood on a weapon can be examined as instructively under the microscope as if it were on an ordinary cover glass, if examined by strong artificial light. Even if the drops are invisible to the naked eye, the blood corpuscles stand out with their distinct outlines and characteristics. Three years ago Marzo called attention to the differential importance of crystals of iodo-hematin as a means of determining the presence of blood. Later he proposed a method based on treatment of the spot with chlorin water, pyridin and ammonium sulphate, to reveal the presence of hematin. In order to determine the age of a blood spot Tomellini uses a color scale made by letting drops of blood from a wound, bleeding both arterial and venous blood, fall from a height of about four inches on a white cloth, making all the drops of the same size. He then recorded the tint of the drops at the end of an hour, four hours, four days, a month, a year, etc. The sunlight was not allowed to fall directly on the drops. His color scale shows twelve types of tints giving the color of a drop of blood at different periods. Marzo has improved on this method as follows for still more exact determination of the age of a blood spot. When a spot of blood is submitted to him in a forensic case he compares it with the Tomellini table and notes the type with which it corresponds. At the same time he draws a drop of blood from his finger and deposits it on the cloth or article bearing the suspicious spot. The cloth or article is then placed in the spot whence it was taken and the former conditions reproduced as perfectly as possible. The fresh drop is then examined from time to time until its tint comes to approximate that of the type recorded, when the interval can be safely stated as the same as that between the first shedding of the blood and the discovery of the crime by the police.

Of course the findings are not mathematically correct, but they give an approximate of the truth which is liable to prove useful in some circumstances. The police must be instructed that the control blood spot has to be made under the same conditions as the primary spot, and consequently that it is important to have an unstained scrap of the linen or cloth brought for the purpose, and every effort made to reproduce the conditions of light or darkness, etc.

**Gelatin as an Anesthetic and as a Hemostatic.**—L. J. Facio of Buenos Aires publishes in the *Semana Medica*, Nov. 5, 1908, an account of a number of cases not only of aneurism, but also of other affections in which he was able to arrest the pain by daily subcutaneous injection of a small amount—not more than 25 c.c.—of a 1 per cent. solution of gelatin. The pain was constantly attenuated by the first injection, and disappeared completely after the second or third. With an aneurism the effect is more marked than that of morphin. In pleurisy, articular pains, progressive paralysis, etc., the effect was less pronounced than that of morphin, but it lasted much longer. There were no by-effects of any consequence observed in his experience, and the local pain is slight when these small amounts are injected. The anesthetic action occurs promptly and lasts for twenty-four hours at least, and sometimes for three days, or even longer. Chaput advocates the more extensive use of gelatin as a preliminary or supplement to operations to prevent or arrest hemorrhage. His communication was published in the *Bull. de la Soc. Méd. des Hôp. de Paris*, Nov. 26, 1908. Instead of opening the wound again in case of severe secondary hemorrhage he raises the part, raising the foot of the bed by 30 cm. after a laparotomy, covers the region with an ice bag, injects physiologic salt solution under the skin or into a vein, and then injects into the thigh 500 gm. of a 1 per cent. solution of gelatin. He relates a number of examples to show the remarkable benefit from this method. If the hemorrhage recurs, the wound must be opened, the clots removed, and the oozing vessels ligated, after the hemorrhage has been arrested by repeating the above measures. He advises the use of gelatin in this way in every case of ruptured tubal pregnancy. If operative intervention becomes necessary, the patient is then in good condition for it. Marfan found gelatin useful, given internally, in a severe case of hemorrhagic purpura. Chaput explains the secondary hemorrhage as the result of liquefaction of the clot under the action of bacteria from without, possibly entering by way of the drain.

**Italian Congress for Tropical Medicine and Hygiene.**—One of the communications at this congress, held at Rome in October, was from Caccini, discussing the high mortality from tuberculosis among Italian immigrants at New York. He emphasized the necessity for lectures, in Italian, on hygiene and prophylaxis in the Italian quarters, where the immigrants can learn how to protect themselves against disease. Their ignorance of the language renders them unable to take advantage of the prophylactic measures already instituted in New York. Mozzetti related a recent interesting experience with vaccination in Abyssinia. There was danger of an epidemic of smallpox, and at the request of the native authorities he vaccinated several thousands, almost the entire population, with the usual technic. The native authorities, however, decided that this was not enough, and the people were vaccinated again by the customary method of variolization, inoculating pus taken from a smallpox patient. The inoculations, however, failed to produce the slightest disturbance or symptoms in the previously vaccinated persons, not one showing any effect from the variolization while all those previously unvaccinated developed the usual mild attack of variola. Nothing could have been more conclusive, and the people of Abyssinia, at least, are fully convinced of the magic power of vaccination, and the natives from the countries beyond are now asking for the animal lymph vaccine. Rosati called attention to the great danger in Italy from returning tuberculous emigrants. Between 600 and 700 return to Italy every year, and they are allowed to proceed unmolested to their former homes where they are liable to spread infection. He mentioned instances of places where tuberculosis had been unknown until thus imported. The congress adopted resolutions along these lines and adjourned to meet at Naples in October, 1909, when Prof. A. Celli will preside. Celli and Rho are the representatives of the society in the International Association for Tropical Medicine.

**International Prevention of Criminal Abortion.**—The French Obstetric Society, at its recent annual meeting, Paris, October 8 to 10, appointed a permanent committee to study ways and means to be suggested to the public authorities for the prevention of criminal abortion. The committee includes nine of the prominent obstetricians of France, besides the officers of the society, and Treub of Amsterdam, Bossi of Genoa, Guzzoni of Messina, and Keiffer of Brussels. Resolutions were adopted stating that, while it was not within the province of the society to discuss the subject on social, moral or religious grounds, yet it felt the urgent need for warning and calling attention to the great frequency and extreme gravity of the accidents consequent on criminal abortion, whatever the methods employed or the precautions observed. Statistics establish that in the large majority of cases long and serious local affections follow; that in two-thirds of the cases very serious affections develop, menacing life, entailing incapacity for work for months, years or permanently, and that the survivors are left infirm. Death usually spares women delivered normally at term, but carries off at once or not long afterward 6 per cent. of the women delivered by abortive practices. Recent statistics from the lying-in hospitals of the large cities show further that these practices destroy prematurely about a third of all the products of conception. The appeal for concerted action in this line was made by Bossi of Genoa, who delivered an address on the subject. Doléris, the president of the society, testified that at Paris 25 per cent. of the deliveries in the hospitals were the result of criminal abortive practices, and that the morbidity of the criminal abortions amounted to 66 per cent. and the mortality to 6 per cent. This discussion of prophylaxis against abortion was mentioned in the "Paris Letter," Nov. 7, 1908, page 1613.

## Marriages

HARRY E. MOCK, M.D., to Miss Golda Taylor, both of Chicago, December 25.

JAMES A. LONG, M.D., to Miss Alice G. Rust, both of Frederick, Md., December 19.

JULIA C. BARROW, M.D., and Robert P. Eckles, both of Sardis, Miss., December 10.

JOSEPH M. ASHER, M.D., to Miss Louise Teller Schlesinger, both of Philadelphia, December 21.

LEWIS C. SAMPSON, M.D., to Mrs. Ida Frances Gallagher, both of St. Joseph, Mo., December 24.

HENRY J. KOHLMANN, M.D., to Miss Phoebe Edna Skidmore, both of Brooklyn, N. Y., Sept. 4, 1905.

CLAUDE B. WILLIAMS, M.D., Elizabeth City, N. C., to Miss Rennie Buxton, of Jackson, N. C., December 23.

LLOYD EMERSON MATTER, M.D., Lake Geneva, Wis., to Miss Charlotte Grace Haines, of Chicago, December 24.

CHESTER A. WRIGHT, M.D., Cayce, Ky., to Miss Blanche Thelma Freeman, of Alexander, Ky., December 13.

FREDERICK M. BARNEY, M.D., U. S. Army, to Miss Isabelle D. Melville, of New York City, at Fort McHenry, Md., December 16.

STEPHEN ELLSWORTH SMITH, M.D., Grantville, Kan., to Mrs. Emma B. Moulton, of Holton, Kan., at Grantville, December 13.

## Deaths

**Alfred Russell Goodrich, M.D.** Berkshire Medical College, Pittsfield, Mass., 1846; a member and in 1879, president of the Connecticut State Medical Society; formerly principal of the Deerfield, Mass., Academy; a member of the General Assembly of Connecticut in 1870; for three terms comptroller of the state, and for two terms state treasurer; president of the local school board for more than thirty years; a member of the board of health and a trustee of the public library; died at his home in Vernon, December 20, from senile debility, aged 90.

**Isaac McClellan Tittsworth, M.D.** Medical College of Ohio, Cincinnati, 1889; a member of the American Medical Association; and for several years president of the Jefferson County (Tenn.) Medical Society; for many years local surgeon at Mossy Creek, Tenn., for the Southern Railway Company; representative in the legislature in 1905; a member of the local board of U. S. Pension Examining Surgeons; died at his home in Jefferson City, December 20, from cholelithiasis, aged 56.

**Francis Marion Morgan, M.D.** Washington University, Baltimore, 1869; a Confederate veteran; physician to the Norfolk county jail; ward physician of Berkley and coroner for several terms; formerly surgeon to the Norfolk and Southern Road, and health officer of Portsmouth, Berkley and Brambleton; died at his home in Norfolk, Va., December 25, aged 62.

**Benjamin C. Stevens, M.D.** University of Michigan, Ann Arbor, 1873; a member of the American Medical and Kankakee Valley medical associations; once president of the Cass County (Ind.) Medical Society; for eight years county physician and for one term coroner; died suddenly from angina pectoris, at his home in Logansport, December 22, aged 58.

**Samuel Hart, M.D.** Bellevue Hospital Medical College, New York City, 1867; major and surgeon of the Sixty-third, Fifteenth and Seventy-fifth Ohio Volunteer Infantry during the Civil War, and at its close given the brevet rank of lieutenant-colonel; for fifty-six years a practitioner of Marietta, Ohio; died at his home, December 21, aged 78.

**Joseph Bernard Anderson, M.D.** Fort Worth (Texas) University, 1907; a member of the Oklahoma State Medical Association; for six months superintendent of Fort Worth Hospital, and later a practitioner of Enid, Okla.; died in San Antonio, Texas, December 14, from pulmonary tuberculosis, aged 35.

**Arthur Sanford Cheney, M.D.** Yale Medical School, New Haven, Conn., 1893; formerly a practitioner of New Haven, but for two years in the United States consular service, and American consul at Messina, Sicily; was killed in the earthquake which destroyed that city, December 29, aged 39.

**Jacob Wilber Velie, M.D.** Geneva (N. Y.) Medical College, 1852; one of the most valued members of the Chicago Academy of Sciences, of which he was successively secretary, curator and taxidermist; died recently at the home of his son, in St. Joseph, Mich., aged 79.

**Frederick E. Maxcy, M.D.** Medical School of Maine, Brunswick, 1879; a member of the Maine Medical Association and Medical Association of the District of Columbia; died suddenly at his home in Washington, December 25, from cerebral hemorrhage, aged 55.

**I. Nutt Plummer, M.D.** Medical College of Ohio, Cincinnati, 1872; a member of the Indiana State Medical Association; surgeon in the Army during the Civil War; died suddenly at his home in Shoals, Ind., December 23, from cerebral hemorrhage, aged 70.

**Samuel Ramsey Seawright, M.D.** Indiana Medical College, Laporte, 1849; coroner of Tippecanoe County, Ind., in 1882, and in 1893 president of the State Board of Health; died at his home in Lafayette, December 20, from senile debility, aged 84.

**Frederick Lawrence Joyce, M.D.** Harvard Medical School, Boston, 1903; for two years an interne in St. John's Hospital, Lowell, Mass.; but later a practitioner of San Francisco; died recently in Monrovia, Cal., from tuberculosis aged 30.

**Samuel Reed Dunn, M.D.** Jefferson Medical College, Philadelphia, 1867; health officer of Washington County, Miss.; formerly a member of the State Board of Health; died at his home in Greenville, December 20, from heart disease, aged 66.

**Robert William Nelson, M.D.** Jefferson Medical College, Philadelphia, 1846; a member of the Medical Society of Virginia; city physician of Charlottesville, Va.; died at his home December 22, from cerebral hemorrhage, aged 86.

**Percy Eugene Eagan, M.D.** Kentucky School of Medicine, Louisville, 1897; of Coal River, W. Va.; was struck by a train while crossing the railway track near that place, December 24, and died a few hours later, aged 34.

**Bayard Taylor Wise, M.D.** Ohio, 1850; of Indianapolis; surgeon of the Fifth Iowa Volunteer Cavalry during the Civil War; died in the Deaconess Hospital, Indianapolis, May 16, from cirrhosis of the liver, aged 73.

**David C. Eisbein, M.D.** University of Buffalo, N. Y., 1878; a member of the Medical Society of the State of New York; and a veteran of the Franco-German war; died at his home in Buffalo, December 24, aged 64.

**Elijah Glendenning, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1865; a member of the Iowa State Medical Society; died at his home in Lineville, December 17, from pneumonia, aged 76.

**Charles Allen, M.D.** Georgetown University, Washington, D. C., 1861; for several years a ward physician of Washington, D. C., died from cerebral hemorrhage at his home, December 24, aged 73.

**James Valorous Lewis, M.D.** Geneva (N. Y.) Medical College, 1861; for 47 years a practitioner of North Norwich, N. Y.; died at his home, December 23, from pneumonia, aged 78.

**James G. Wheeler, M.D.** Cincinnati College of Medicine and Surgery, 1881; of Broughton, Ill.; died in the Evansville (Ind.) Sanitarium, December 18, from cancer of the stomach, aged 61.

**James Ross Reed, M.D.** University of Pennsylvania, Philadelphia, 1896; of Conemaugh, Pa.; died in Mercy Hospital, Pittsburg, December 22, from pneumonia, aged 34.

**John Kincaid, M.D.** Philadelphia, about 1845; a practitioner of Rome, Ga., for more than fifty years; died at his home, September 5, from the effects of a fall, aged 86.

**James Hollis Ward, M.D.** Ohio Medical University, Columbus, 1901; of Columbus, Ohio; died at his home near Gahanna, Ohio, December 25, from tuberculosis, aged 36.

**Albert J. Tuggle, M.D.** Atlanta (Ga.) Medical College, 1890; a member of the Medical Association of Georgia; died at his home in Lagrange, Ga., December 24.

**John C. Bostick, M.D.** Bennett Medical College, Chicago, 1881; an eclectic practitioner of Benton Harbor, Mich.; died at his home, December 29, from cerebral hemorrhage, aged 50.

**Edward Ingham Wood, M.D.** Albany (N. Y.) Medical College, 1865; died at his home in Stillwater, N. Y., November 27, from angina pectoris, aged 55.

**Archibald C. Hoss, M.D.** Jefferson Medical College, Philadelphia, 1875; died at his home in Jonesboro, Tenn., December 23, from pneumonia, aged 55.

**Wendelle C. Boyd, M.D.** Harvard Medical School, Boston, 1893; died at his home in Linneus, Maine, in August last, after an illness of two years.

**Newton Sewell, M.D.** Atlanta (Ga.) Medical College, 1881; died at his home in Tecumseh, Okla., December 25, from cerebral hemorrhage, aged 55.

**Moses W. Caverly, M.D.** Medical School of Maine, Brunswick, 1853; died at his home in Brentwood, N. H., December 23, aged 81.

**August F. Volkmann, M.D.** University of Halle, Germany, 1850; died at his home in West Baltimore, Md., December 18, aged 77.

**Sigmund Bloch, M.D.** University of Vienna, Austria, 1876; died at his home in Muskegon, Mich., December 19, aged 63.

**Enoch C. Hartrum** (License, Ohio, 1896); died at his home in Rocky Fork, Ohio, December 21, from kidney disease.

**Robert Boyd, M.D.** Harvard Medical School, Boston, 1868; of Linneus, Maine; died in June last from nephritis.

**Samuel Hood, M.D.** London; died at his home in Crete, Ill., February 28, from senile debility, aged 92.

# Medical Economics

## POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

### Sixth Month

*General Subject for the Month: Surgery of the Stomach and Intestines*

FIRST WEEKLY MEETING

ANATOMY

STOMACH

SURFACE MARKINGS.—Location of orifices, greater and lesser curvatures. Relations to wall when full and empty.

RELATIONS.—Above, externally, posteriorly, anteriorly. Cardia, fixation, relations. Pylorus, fixation, relations, relation to cardia. Greater curvature, length, relations, variations, blood vessels. Lesser curvature, position, relations, attachments, blood vessels.

LYMPHATICS.—(a) Lesser curvature, number, portion drained; (b) greater curvature, number and location of glands, portion drained; (c) fundus.

SMALL INTESTINES

SURFACE MARKINGS.

DUODENUM.—Length, position, shape, relations of each portion, peritoneal relations. Duodeno-jejunal fossa (Treitz).

JEJUNO-ILEUM.—Length, limits; diameters, thickness and vascularity in different portions; mesentery, mesentric attachment of intestine, omentum. Intestinal wall, serous, muscular, submucous and mucous layers. Glands of mucosa. Blood vessels, superior mesenteric and branches. Difference in blood supply of stomach and intestines. Lymphatics and nerves.

LARGE INTESTINES

SURFACE MARKINGS.

CECUM.—Location, size, relations, types, peritoneal, relations, structures, ileocecal valve, Gerlach's valve.

VERMIFORM APPENDIX.—Location, developmental characteristics, length, size, structure, "abdominal tonsil." Mesoappendix, shape, attachments, contents. Ligament of Clado, attachments, contents. Blood vessels, artery and branches, variations. Lymphatics: (a) Ileocecal into mesenteric glands, (b) ceco-appendicular into retrocolic glands, (c) through Clado's ligament in female. Nerves, localization of pain.

COLON.—Size, length, limits, fixation, portions, flexures, capacity. Characteristics, bands, sacculations, appendices epiploicæ. Difference in structure from small intestine. Blood vessels, nerves and lymphatics.

*Surgery of the Stomach*

GASTRIC AND DUODENAL ULCERS

PERFORATIONS

PERFORATION OF GASTRIC ULCER.—Varieties: Acute, subacute, chronic. Diagnosis: Remote and immediate history, pain, shock, pulse, temperature, respiration, sweats, facies, vomiting, rigid abdominal muscles. Changing symptoms in reaction. Peritonitis later. Indications and contraindications for operation. Operation: Incision, closure of perforation, toilet of peritoneum, flushing, drainage, indications for gastroenterostomy. After-treatment, posture.

PERFORATION OF DUODENAL ULCER.—Acute or chronic. Direction of escaping fluid in acute cases suggests appendicitis. Varying pathology in chronic cases, encysted abscess, perforation of adjoining viscera, general peritonitis. Operation: Closure of perforation, or drainage.

REFERENCE BOOKS FOR THE MONTH

Moynihan: Abdominal Operations.
Kelly and Noble: Abdominal Surgery.
Keen: Surgery.
Bryant and Buck: System of Surgery.
von Bergman-Bull: System of Surgery.
Robson and Moynihan: Diseases of the Stomach and Their Surgical Treatment.
International Text-book of Surgery.
Dennis: System of Surgery.
Douglas: Surgical Diseases of the Abdomen.
Gould: Operations on the Intestines and Stomach.
Bryant: Operative Surgery.
Grieg Smith: Abdominal Surgery.
Fowler: Surgery.

# Society Proceedings

## COMING MEETING

Medical Society of State of New York, Albany, Jan. 26.

## WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

*Eighteenth Annual Meeting, held at Minneapolis, Dec. 29 and 30, 1908*

The President, DR. W. W. GRANT, Denver, in the Chair

### Officers Elected

The following officers were elected: President, Dr. A. L. Wright, Carroll, Iowa; first vice-president, Dr. J. F. Percy, Galesburg, Ill.; second vice-president, Dr. William D. Haines, Cincinnati, Ohio; secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. Omaha, Neb., was selected as the place for holding the next annual meeting; time, Dec. 20-21, 1909.

### Value of Enterostomy in Intestinal Obstruction

DR. JOHN P. LORD, Omaha, Neb.: The general mortality after operation for intestinal obstruction is probably from 50 to 80 per cent. According to Elsberg, in only about 10 or 15 per cent. of cases entering Mount Sinai Hospital, New York, is the condition still to be considered a good one; and 54 died out of 100 patients entering three of the large hospitals in New York during 1906. The extreme conditions commonly met require too much anesthetic, too much surgery and too much time for successful surgical relief by the radical intervention too commonly resorted to. Until earlier diagnoses are made, and more prompt surgical intervention is resorted to, enterostomy by the Senn or Kader principles should be done to drain the toxic contents of the intestine and to stop the absorption of these ptomains, although an effort should be made to relieve the effects of distention on the intestines, and its hindrance to respiration. It relieves conditions which, if allowed to continue, become rapidly fatal. It meets the indications without necessarily killing those who are extremely ill. It is not a last resort. Done in the modern way, it is not formidable, nor very objectionable, in the face of so serious an affliction. Inanition, formerly feared, skin

excoriation, and the necessity for a secondary operation, are all eliminated by the present methods. Liquid nourishment, stimulants and cathartics may be administered with valuable results. Irrigation and drainage and the use of the Moynihan tube may also be accomplished before the wound is closed, and may also be used to a limited extent afterward. The necessity for a radical secondary operation is sometimes obviated by this "tide-over" procedure, because of the subsidence of peritonitis, the consequent infiltration, the paralysis, and even the angulation which was due to overdistention; the improved results from this procedure justify its more extended use. It is not so formidable as to preclude its use by general practitioners, who have had hospital training and possess surgical instincts. The coming generation of physicians can be more depended on to make earlier diagnoses and to possess the skill to relieve most surgical emergencies. The mortality from intestinal obstruction is, therefore, to be lowered in the near future.

DISCUSSION

DR. WILLIAM D. HAGGARD, Nashville: I think if we would heed the lesson of this paper, we would be able to transfer some of the desperate cases from the death class to the live class. There is not a surgeon who has not had the mortifying experience of a tremendously high mortality attending the hopelessly delayed cases of intestinal obstruction. If we can operate on these patients quickly under local anesthesia, by enterostomy, I am certain that we will be able to save a larger proportion of them primarily.

DR. J. F. PERCY, Galesburg, Ill.: In 1902 I opened the abdomen of a physician's son in a case of delayed appendicitis. I did it at the request of the young man, and I found there the condition that is embraced in the title of this paper—a condition where everything was black, and I recognized that there was something besides opening the abdomen for drainage to be done in the care and cure of these patients. My next such patient, about a year afterward, was brought into the hospital in a moribund condition. He was cyanotic. I directed my anesthetist to put cold water on the mask because the man was near dead, and I wanted one or two members of the family in the room, so that if he died on the table there would not be any question as to responsibility on part of the operator. I made a quick opening in the right iliac region and grasped the first piece of intestine that presented, fastened it, and opened it. The patient remained in a semiconscious condition for three weeks, but made an operative recovery. Two or three months afterward, when he became tired of the persisting fistula I operated and resected sixteen or eighteen inches of the intestine, after which he made a perfect recovery. I have had four cases of that kind since 1903, and all of the patients have recovered by that treatment.

DR. R. C. COFFEY, Portland, Ore.: The mortality from intestinal obstruction is doubtless 50 per cent. less than it was two years ago, and this is due to two or three things. First, the family physician recognizes that acute distension of the abdomen, which can not be accounted for in any other way, is to be looked on with grave suspicion. Second, we have learned that a paralyzed bowel, distended, in which ecchymotic spots are developed on the intestine above, is dangerous, and will not empty itself, even though the constriction is relieved. One of the most important things in dealing with these cases of intestinal obstruction is to keep everything possible out of the stomach, as in the Ochsner treatment for appendicitis, in order to prevent the formation of gas; second, the injection of fluids from below by Murphy's proctocleisis.

DR. F. GREGORY CONNELL, Oshkosh, Wis.: There can be no question as to the advisability of performing enterostomy in severe cases of intestinal obstruction. In a case in which there is obstruction of the bowel, and a laparotomy is done and the obstruction relieved, when shall we do enterostomy, and when shall we close the abdomen and allow the patient to get well? If enterostomies are done unnecessarily, the mortality rate will be higher than is necessary. This point should be emphasized, and I bring it up for the purpose of receiving enlightenment. In cases of acute intestinal obstruction, we should emphasize the necessity of infiltration anesthesia, because of the danger of the patient drowning with the vomited matter on the table, in case a general anesthetic is used.

DR. JAMES E. MOORE, Minneapolis: When shall we do enterostomy, and when shall we do a radical operation in these cases of acute intestinal obstruction? We have to depend on the judgment and experience of the operator who has the case in charge. I think it would be equally objectionable to undertake to do radical operations in all these cases as to do enterostomy in all cases, because a fecal fistula is a very uncomfortable thing for the patient, and it does not enhance the reputation of the surgeon. Also, it will necessitate an operation later, which is not free from danger. At the beginning of surgery for this condition, the mortality rate from intestinal obstruction was stated by Treves to be 95 per cent., and yet there are men in every community who will treat these cases to-day just as they were treated in the days before Treves was born; they will wait, wait, wait, and their mortality rate is 95 per cent., just as it was many, many years ago. We will reduce the mortality of intestinal obstruction considerably by, first, operating in these cases early, and, second, by using advanced methods of technic.

DR. FREDERICK A. DUNSMOOR, Minneapolis: I wish to report briefly a case that is rather unique. The patient is a girl who has been operated on three times for obstruction of the bowel. I operated on her a year ago for acute appendicitis from which she made a good recovery. Six months later she was operated on again by a colleague in my absence for acute intestinal obstruction, which was perfectly relieved. Later, while skating, she was seized with pain, and was operated on, the operation disclosing obstruction at the upper part of the ileum, and by liberating bands and separating adhesions I was enabled to establish perfect patency of the intestinal tract. Two weeks later, I was called to see the girl again for obstruction of the bowels, with enormous dilatation of the entire small intestine. The intestine was filled with the same kind of fluid that has been described in cases of acute dilatation of the stomach. There were three quarts of this black fluid, which was largely made up of bloody substance at the time. I succeeded in establishing normal patency of the bowel, and while the patient is not in the best condition at this time, she is still alive. She has a fistula.

DR. A. L. WRIGHT, Carroll, Iowa: I wish to speak from the standpoint of a patient. In March I had my first attack of appendicitis. Within eight hours from the onset the appendix had ruptured, and I made arrangements to have it removed. The appendix was removed within fifteen hours from the onset of the first symptoms of any trouble in my right flank. Following the operation, I had septic ileus, and for four or five days suffering was intense; the abdomen had been packed open, but not until a ligature was placed about the appendix for closure did I get relief, which was prompt. I wish, therefore, as a recent sufferer, to urge opening up the bowel, if the patient is in such a condition that further operative interference is unwarranted, by using a sharp-pointed scissors and giving vent to the contents, as I think by so doing we will save a much larger percentage of these patients.

DR. CLIFFORD U. COLLINS, Peoria, Ill.: The remarks of Dr. Connell have raised a question in my mind with regard to the drowning of these patients in the fecal vomit. A few years ago, when Dr. E. Wyllys Andrews published his paper, I saw a case in which the material which came from the mouth was greatly in excess of any quantity that could be contained in the stomach. Probably under the influence of the anesthetic the pylorus became relaxed and a vast quantity of material was forced into the stomach by the combined pressure below. If that is the case, it occurs to me that washing out of the stomach as a preliminary to anesthesia would prevent that trouble. Since then I have operated on patients in the reverse Trendelenburg position, allowing gravity to keep the intestinal contents from escaping, and so far that trouble has been obviated.

DR. VAN BUREN KNOTT, Sioux City, Iowa: Enterostomy has lowered the mortality from intestinal obstruction, but it has by no means eliminated it. From the general trend of the discussion, it would seem that enterostomy in these cases, no matter how late it is performed, in the hands of a good surgeon, is a life-saving procedure. That is by no means my experience, I have had many cases in which enterostomy has been done, yet the patients have died just the same. While the mortality in my experience has been greatly reduced by enterostomy, it has not been done away with. Multiple enterostomy with drainage has proven valuable in my hands.

### Abscess of the Brain

DR. W. H. MAGIE, Duluth, Minn.: I recently had two cases of brain abscess and here I desire to make a plea for a more thorough and systematic exploration of the brain in suspected cases. From the experience, observation and study of these cases, I am satisfied that, as a rule, the surgeon of ordinary experience is far too timid in his exploration of the brain in suspected abscess. These cases are absolutely hopeless unless the abscess is located and drained. Knowing this to be the fact, we are justified in undertaking almost any operative procedure in our efforts to locate and drain such abscesses. I remember the late Dr. Fenger demonstrating what he termed his systematic exploration of the brain for suspected abscess before the Section on Surgery and Anatomy of the American Medical Association at its session in St. Paul in 1901. I was surprised at the time with what seemed to me his reckless disregard for the brain. He used a skull to demonstrate his method, with numerous trephine openings, through which he introduced his trocar or aspiration needle, passing it first in one direction, then another, if pus was not found, until the entire hemisphere has been explored. I am now of the opinion that his method is the proper one, and that we are more apt to err on the side of caution than otherwise. I am determined that in future my exploration shall be sufficiently exhaustive that abscesses like the last two will not be overlooked, believing that exploration of the most searching character is not only justifiable, but demanded, in order that the lives of, at least, some of these unfortunates may be saved.

### Indications for Obliterative in Contradistinction to Reconstructive Endoaneurismorrhaphy

DR. J. W. FRICK, Kansas City, Mo.: I believe that in the vast majority of cases the radical obliterative endoaneurismorrhaphy is the operation to be preferred for the following reasons: 1. The procedure is definite, thorough and radical. 2. No plastic work in diseased tissue is required, such work being notoriously uncertain. 3. In a majority of cases the sac configuration and intrasaccular conditions will preclude plastic work. 4. In reported cases, in which apparently either method might have been employed equally well, the obliterative method has been more satisfactory and shown greater freedom from untoward sequelæ, such as recurrence, hemorrhage, thrombosis, or gangrene. 5. A pathologic aneurism is a malignant degeneration in a vital structure. The diseased vessel can no longer be depended on and deserves obliteration. The technic of intra-aneurismal surgery resolves itself into several distinct essential steps: 1. Preliminary hemostasis. To accomplish this is more or less difficult, according to the situation of the aneurism. Esmarch compression of the main artery above, and temporary, direct compression above and below are variously used. A bloodless field is almost a *sine qua non*. 2. Free opening of the aneurismal cavity to permit a careful survey of the interior of the sac before deciding on the plan of procedure. 3. Intrasaccular suture of orifices. 4. Obliteration of cavity by sutures. 5. Closure and drainage. The after-treatment of these patients is usually simple, only one or two points being worthy of comment. The part operated on is best immobilized by some suitable fixed dressing in a position of relaxation. This prevents tension on the vessel wall longitudinally, and also allows free play for the establishment of a collateral circulation. Drainage should be removed early, as soon as its purpose is served.

DISCUSSION

DR. JOHN P. LORD, Omaha, Neb.: I was greatly interested in the work of Dr. Matas from the first, as well as in the work done by others, and have been looking for cases that were suitable for the Matas procedure. I have had two cases of popliteal aneurism, but when I came to consider the feasibility of treatment by this method, and began to look up the subject, I found that both of these patients were poor subjects for surgical exploitation. The arteries were generally sclerosed; the arterial tension was high, while the kidneys were not in a good condition. One patient was a man of 60. When one looks over the literature, he becomes impressed with the wisdom of John Hunter and the value of his procedure of ligation of the femoral artery. He is likewise impressed with its simplicity and the ease with which the operation is borne by the patient. I resorted to ligation in both of my cases, the patients did well, made good recoveries, and are still living. I am not fully convinced of the advantage of doing aneurismorrhaphy in all cases of popliteal aneurism. It does not appeal to me. I am still to be convinced of its desirability, as we know there have been failures and very anxious periods in the treatment after such an operation.

### Subserous Appendectomy

DR. E. M. SALA, Rock Island, Ill., reported four cases in which he resorted to the removal of all the appendix except its serous coat, thus avoiding disturbing adhesions of the appendix to other viscera. He believes the method has a permanent place in surgery, and is the operation of choice in certain forms of adherent appendix. He concluded his article practically as follows: 1. The vermiform appendix may be shelled out of its peritoneal covering or serous coat. 2. The remaining serous coat can not cause a recurrence. 3. This method of dealing with an appendix, which is glued to other important structures, avoids the disagreeable sequences of loosening up strong adhesions, and in many cases may preclude subsequent operations, which are always embarrassing to the operator, and a misfortune to the patient.

DISCUSSION

DR. JOHN P. LORD, Omaha, Neb.: I have availed myself of this procedure in suitable cases, and am reminded of one patient on whom I operated eight years ago, following a technic similar to the one that has been described. In this case a young surgeon had operated for an hour and a half in trying to deliver the appendix, and by this means I was enabled to deliver it from the bottom of the pelvis. This procedure is valuable in that it saves lots of trouble and lessens danger.

(*To be continued*)

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## CHICAGO MEDICAL SOCIETY

*Regular Meeting, held November 11, 1908*

The President, DR. ALFRED C. COTTON, in the Chair.

### The Bismuth Paste Treatment in Ear, Nose and Throat Affections

DR. JOSEPH C. BECK read this paper, which appears in this issue, page 117.

DISCUSSION

DR. HENRY GRADLE: I have had two cases of dacryocystitis in which the results from the use of bismuth paste were satisfactory. In one the cure was effected more rapidly than could have been obtained by other methods. In the other, a cure was nearly effected, when the patient left the city and has not returned since. I have treated two cases of persistent discharge from the middle ear, one after a radical operation, the other after a simple mastoid. In both of these cases the treatment was a total failure. On mechanical principles the treatment does not appeal to me as applied to the complicated and labyrinthine system of spaces adjoining the nose, various sinuses, or spaces surrounding the middle ear.

DR. A. J. OCHSNER: I have employed this method in about twenty cases of old tuberculous sinuses. The possibility of

application of bismuth paste in these cases is so great and the proportion of satisfactory results from it so large, that I look on it, in appropriate cases, as the most important advance in surgery that we have had during the past two years. I have applied the mixture in practically every part of the body, with the exception of some special parts, like the nose. I have had patients with old empyemas communicating with a bronchus, operated and reoperated on many times, and within six or eight weeks healing has taken place, and has been permanent, by the use of the bismuth mixture. I had a case of fistula leading down to the pancreas from a gastrectomy, which persisted in discharging, and which healed after a few weeks following injection of the bismuth mixture. I have had cases of prostatectomy, with persistent fistulas, that were treated with the bismuth mixture with satisfactory results. I have had two cases of tuberculous sinuses leading down to tuberculous kidneys, in which a cure was effected. One of the patients has gained forty pounds since the first injection.

DR. EMIL G. BECK: From the standpoint of general surgery, I believe that in the after-treatment of acute mastoid disease the bismuth paste will be used instead of a dressing. When my brother began to treat these cases with bismuth paste I knew he would have some good results, but had no idea that the method would be applicable to so many conditions as he has reported. I warned him in the beginning not to use the paste in any of the accessory sinuses, fearing that through some anatomic abnormality the paste might enter the cranium and produce compression. However, he has shown by a large number of cases that no bad results have ensued, and will not follow, provided one is familiar with the anatomy of the parts and the technic of the method. The method deserves a fair trial by others in the class of cases reported.

I desire to thank Drs. A. J. and E. J. Ochsner, who have done so much toward informing the medical profession of the value of this method. More than to anyone, I am indebted to my brother, Dr. Carl Beck, who has not only guided me in my experiments, but who first employed and advised me of the bismuth vaselin injections for diagnostic purposes, the method which eventually proved to be of such great therapeutic value.

DR. J. H. F. O'NEILL: One dose of yellow vaselin injected into a guinea-pig will reduce the bacteria in the intestines from 30 to 40 per cent. This has been proved by experimental work. Perhaps bismuth paste has the same effect on bacteria in the sinuses.

DR. WILLIAM L. BALLENGER: I have used bismuth paste in about twenty-five cases in the last two months, all of which have been ethmoidal except two, and these were a frontal sinus case and one antrum case. I have not used it in any ear cases, nor in any cases except as a postoperative treatment. Frankly, I have not been able to notice any advantage from this treatment over the methods formerly used. I am still persisting in its use and am trying to perfect my technic, hoping by so doing to get better results. I am not impressed that there is any particular advantage in this treatment, except in the mastoid cases, over other methods. For instance, in chronic mastoid cases in which a radical mastoid operation has been done, of which Dr. Beck reported a number of cases, we are accustomed to expect a cure from a single operation. Dr. Beck effects his cures by use of the bismuth paste. The question arises whether he would not obtain these cures without the use of bismuth. Recently I did a turbinectomy, with partial removal of the ethmoid, filled the nose full of paste, put in an anterior plug of cotton to retain the paste, and the patient had a severe hemorrhage. This is the only case in which I have had hemorrhage follow the use of the paste.

DR. A. H. ANDREWS: I have had two postoperative sphenoid cases, two cases of disease of the antrum of Highmore and a number of radical mastoids, in which I have used the bismuth paste. In these the results were satisfactory. I have had a number of other cases, not postoperative, in which I used bismuth paste, but in which I was not able to obtain satisfactory results. I have not injected bismuth paste in chronic suppuration of the middle ear, because I have been afraid to do so

DR. J. RAWSON PENNINGTON, Chicago: Judging from apparent results in treating nineteen patients with rectal fistula with this paste, I consider it a valuable discovery. In fourteen of the nineteen patients whom I have treated the discharge has ceased and the fistulas are closed, and, to the best of my knowledge, the patients are well. In one I passed a probe through the external opening, which was near the anus, upward and backward between the rectum and sacrum to a point about opposite the promontory of that bone. I question whether any surgical operation looking to a complete division of that tract would have been justifiable. Moreover, the man also had an abscess in the left groin which probably communicated with this fistula, though it was not demonstrated. About three ounces of the paste were injected into the fistula at one sitting. It is now closed, and the patient has had no discharge from it for more than two weeks.

DR. JOSEPH BECK: I have treated 319 cases, embracing a variety of conditions, without any ill results. I have treated a large number of cases of hypertrophic rhinitis and of tonsillar affections, yet I have had no ill effects from the treatment. I have used vaselin alone, and so have others, and have failed to get any effect from it, either in nose or ear suppurations. I think that when Dr. Ballenger perfects his technic he will get better results. The glass syringe ordinarily used to force the bismuth paste into the nose will not enable one to reach the cavities. Such a syringe is valueless in treating the sinuses. Patients should not be allowed to walk after the injection of bismuth paste, because in so doing the bismuth drops into the throat, and therefore hemorrhage occurs. I place my patients in bed after operation with bismuth, and the next day the bismuth is removed, and there is no hemorrhage. I have not had hemorrhage in any of my cases in which I have used bismuth as a dressing.

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## SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

*Twenty-first Annual Session, held in St. Louis, Dec. 15-17, 1908*

(*Continued from page 68*)

### Suprapubic Prostatectomy

DR. ARTHUR DEAN BEVAN, Chicago: Suprapubic enucleation of the prostate has the widest field of usefulness. It is practically applicable to all cases of prostatic hypertrophy, in which prostatectomy is indicated. It gives full and complete information of not only the prostate, but the bladder and its contents. It does not injure or interfere with the musculature and nerve supply of the perineum and structures controlling continence. It carries with it little risk of injury to the rectum; it is seldom followed by incontinence, fistula or stricture. The disadvantages claimed against it are greater mortality and necessity of longer residence in hospital. I feel confident that there are fewer complications after the suprapubic than after the perineal operation. While I do not belittle the various operations of perineal prostatectomy, or the excellent work done by the surgeons advocating this route, my conclusion is that the suprapubic operation is preferable to other methods which have been advocated.

#### DISCUSSION

DR. J. GARLAND SHERRILL, Louisville: I have had experience with all methods of operating for the removal of hypertrophied prostate, and while admitting that there is a slightly greater mortality from the suprapubic method, I am firmly convinced that the end results from this method are better than by any other method.

DR. CHARLES H. MAYO, Rochester, Minn.: There is a field for both suprapubic and perineal prostatectomy. In some cases, if the patient be examined by rectum it will be found that the prostate is close to the finger; and such a prostate is easily enucleated by the perineal route. In another case the prostate gives a great deal of trouble, although it may not be much enlarged. It is located high up, and is small

and hard, causing obstruction at the internal meatus by a prostatic bar or a middle lobe. If there is complication with stone or other foreign body in the bladder, and the patient is septic, such a case can be dealt with by the suprapubic route.

DR. CHARLES E. BOWERS, Wichita, Kan.: Four years ago I reported twelve consecutive cases of suprapubic prostatectomy without a death. Up to date I have done 47 operations suprapubically for enlarged prostate; but a short time ago I abandoned the suprapubic for the perineal route in a case of carcinoma of the prostate, but did not succeed with the infrapubic route. Of this number (47 suprapubic operations) I lost two patients, one dying a few hours after the operation. One died from carcinoma.

DR. BRANSFORD LEWIS, St. Louis, Mo.: While I am partial to the perineal route for the removal of enlarged prostate, I think there is a field for other methods. The cases should be carefully selected for the particular operation. One should take a catholic and broad-minded attitude in regard to this subject and consider the comfort and benefit of the patient regardless of whether or not one method of attack is easier than the other.

DR. MILES F. PORTER, Fort Wayne, Ind.: I have done twice as many suprapubic as perineal prostatectomies, and have observed that my suprapubic patients make smoother recoveries, all told; they are up quicker; they feel better sooner than do the perineal patients, other things being equal. But I do not know why.

DR. MAURICE H. RICHARDSON, Boston: When we have a certain form of prostate, encapsulated and easily removed from its capsule, no more beautiful operation anatomically can be imagined than perineal prostatectomy, but it is seldom in my experience that a prostate comes out so easily through the perineum. In many cases the prostate projects into the bladder, and by the suprapubic route we have an opportunity to examine the condition of the bladder; we know whether or not there is a stone present; we know whether or not there is cancer of the prostate, and as an anatomist I believe in operating with the sense of sight, when possible, as well as with the sense of touch.

DR. F. W. MCRAE, Atlanta, Ga.: The cases I have seen, in which an extensive perineal operation has been done, have eventuated in a number of painful perineums. These patients, after the perineal operation, have no trouble in urinating, but when they stand up for any length of time, or sit, they have much pain. I have seen rectal trouble follow operations by the perineal route. Latterly, I have been closing the suprapubic bladder wound snugly around a Jacobson catheter, passed through a stout rubber tube, and the bladder is closed down to the side of this tube, and two sutures of silkworm gut are put through the edges of the bladder for tightening the latter; then irrigations are kept up by an orderly or nurse; hot boracic acid irrigations are given to prevent any clotting, irrigating alternately through the suprapubic opening or retained catheter, and the patients are practically kept dry.

DR. A. D. BEVAN: My attention was called to the fact that after some two-step operations the patients had much greater comfort without any attempt at drainage. In some complicated cases, in which a suprapubic opening was made, the bladder drained and then a second operation done to remove the prostate, I found that without the introduction of any tube into the bladder or any catheter in the urethra the patient apparently was much more comfortable.

### Dermoid Cyst of the Kidney

DR. WILLIAM S. GOLDSMITH, Atlanta, Ga.: Only two cases of dermoid cyst of the kidney have been reported up to this time, one by Paget, in 1853, and the other by Haekel, in 1902. The symptoms in my case were those of a solid tumor of the kidney, probably of the malignant type. It was of slow growth and associated with it were the three cardinal points of malignancy, hematuria, pain and tumor. The patient, aged 20, family history negative, at two years of age suffered with pain in the right lumbar region, and at intervals of two or three years was treated for kidney trouble. When sixteen years old, he experienced the beginning of a dull pain in the right side, which progressively increased until he consulted me, when the pressure and pain radius was compared to that of a heavy watch lying in the abdomen. Four years ago he had attacks of colic, followed by a slight hematuria, which confined him to the house for twenty-four hours, and were relieved by hypodermics of morphin. Recurrences occured two or three months apart, and for the past two years were characterized by the appearance of a solid tumor, in the right lumbar region. Hematuria and great pain were also accompanying features, and the disappearance of the outline of the tumor was frequently followed by a cessation of the pain. Having witnessed an attack three days before the operation, when the tumor was most manifest, I was convinced that these symptoms were due to a twisted ureter, since the return of the kidney to its normal position practically obliterated the tumor outline. Twenty-four collections of urine showed insignificant deviations from the normal quantity, and microscopic and chemical examinations were negative, except for red blood cells. The patient's weight was normal, and his general condition good. An exploratory operation was advised. A lumbar incision was made, which exposed a large semi-solid tumor of the upper pole of the kidney. Efforts to deliver the kidney resulted in a rupture of the tumor, and a quantity of red, granular material was scooped out with the fingers. Nephrectomy was quickly performed, and recovery was prompt and uneventful. The specimen was submitted to a pathologist, who pronounced it a dermoid cyst.

### Stone in the Kidney

DR. MAURICE H. RICHARDSON, Boston: Operations on stone in the kidney and ureter are becoming of greater frequency and importance. There is a close analogy between renal stone and gallstone. In early and difficult cases the diagnosis rests on a history of pain in some of its forms, usually without confirmation by the *x*-ray, by cystoscopy or ureteral catheterization, by the touch, or by marked signs in the urine. The history in such cases, as in many gallstone cases, gives the only clue; hence, we must study with renewed care the history of stones demonstrated in kidney or ureter, just as we do the history of stones demonstrated in the gall bladder. The indications for operation are hopeless impaction of a stone in the ureter; in the kidney the mere presence of a stone. The contraindications are a local pathology which either forbids operation or makes it so dangerous or so uncertain that the patient has much to lose and little to gain. Fearless frankness in reporting errors in diagnosis, technic, and results is essential in order that indications may be reasonably restricted, and that the choice of patients and friends may not be unjustifiably influenced toward operative measures; at the same time, the evils of calculus situated in the kidney and ureter, and unrelieved, must be likewise frankly and freely published by the physician and palliatist, lest we do not know or lest we forget that health and life have been, are, and will be needlessly compromised by the rejection of mechanical treatment for this mechanical lesion. The great operative danger in nephrotomy, as well as in nephrectomy, is hemorrhage; and when this is from the renal artery or vein or vena cava, easy and instant accessibility is essential to avert death on the table; hence the anterolateral approach is the best. Nephrectomy seems unjustifiable unless the changes in the kidney demand it, especially when the remaining kidney is so likely to contain the nuclei of stones. Before a nephrectomy the remaining kidney must be carefully palpated by the hands. As the stone may be overlooked, so may tuberculosis or other infections. The subject demands wide experience with all manner of treatment, and with candid discussion of failures as well as successes.

#### DISCUSSION

DR. G. E. GAVIN, Mobile, Ala.: I believe the formation of stone is always preceded by infection of the pelvis of the kidney, and while the source of that infection may be the bladder, it is most often from the colon. I have not been able to rely on the *x*-ray as an aid to diagnosis as much as I have on the history of the patient. I prefer to remove the stone through the convex part of the kidney. I almost lift

the kidney on the back, place a rubber tube around the pelvis, control hemorrhage thoroughly, make a longitudinal incision, and with very little blood lost one can deliver the stone.

DR. CHARLES P. NOBLE, Philadelphia: I agree with Dr. Richardson that a well-studied history in these stone cases is the best guide to a diagnosis. I recall the case of a patient on whom I did a nephrectomy for stone and in whom the kidney was destroyed because a small stone had obstructed the ureter and produced disseminated abscesses in the kidney. That patient had been in the hands of a professor of therapeutics, who had treated the patient for three years for gout and had failed to appreciate the importance of a careful study of the urinary organs by modern methods.

DR. BRANSFORD LEWIS, St. Louis: The history of the case, cystoscopy and ureteral catheterization are the means *par excellence* for making a diagnosis of stone in the kidney, but I would not rely on any one of them, preferring to place my reliance on the testimony supplied by all three.

DR. F. W. PARHAM, New Orleans: I have been impressed with the remarkable absence of pain and other subjective symptoms in a case in which there was a large stone in the kidney. Three years ago I operated on a woman for a large encysted stone in the pelvis of the kidney, running up into the calices, and through a large L-shaped incision the stone was removed. This woman had scarcely any pain, but she passed pus in the urine.

DR. A. D. BEVAN, Chicago: This is a branch of surgical work which can not be done properly by any one man. Good kidney stone work demands, first, a good surgeon; second an expert in the use of the *x*-ray. The *x*-ray, when properly used, gives much less than 10 per cent. of error. Third, an expert in cystoscopic examination, and one who, with the least discomfort to the patient, can catheterize the ureters. Fourth, an expert laboratory man to make careful analyses of the urine.

DR. STUART MCGUIRE, Richmond, Va.: Three cases have occurred in my practice which illustrate the importance of having the combined opinion of four different observers, namely, the surgeon, the pathologist, cystoscopist, and the *x*-ray man. A recital of the history of one case will do for all. The patient came with a set of symptoms which were indicative of appendicitis, or equally so, of stone in the right ureter. So far as the pain and the history of the attacks went, it might have been either. In all three cases there was a large quantity of blood and pus in the urine. The ureters were catheterized, the left side being found normal in each case. The right side was found to contain blood, pus and cells from the ureter. Up to this point the evidence seemed in favor of ureteral calculus. An *x*-ray examination was made, and (in every instance) with a negative result. Therefore, the operation for appendicitis was performed, the appendix exposed without disturbing its position, and in each instance a large, angry appendix was found adherent along the line of the right ureter. Evidently the inflammation originating primarily in the appendix had extended by continuity of tissue to the ureter, causing ureteritis. Within a week after appendicectomy the urine was clear, and no subsequent trouble followed.

### Conservative Surgery, Then and Now

DR. F. W. PARHAM, New Orleans: The aggressive surgeon, who always feels sure he is right, then goes ahead, would do well to temper the enthusiasm born of the present brilliant achievements of surgery by giving reverent heed to the admonitions of the past. In renal surgery, for example, conservative and radical surgery display most conspicuously their coincidence. Here results demonstrate that often the most conservative treatment is also the most radical. As witness of this, what could be more striking than that of a case of Bransford Lewis, in which by means of the styletted ureteral catheter and radiographic plates he found three independent ureters, two of them healthy, the third showing gonococcal infection, the cause of a recurrent gonorrhea of five years' standing. Through the means mentioned, the anatomic anomaly was demonstrated; the physiologic phenomenon of supplying three different urines by one individual was proved, and through medicated lavage of the infected ureter, the source of infection was removed and the patient permanently relieved. The glory of the present-day surgery rests primarily on more accurate diagnosis, but the refinements of scientific investigation must always be subjected to the criticism of common sense. It is becoming more and more characteristic of the modern surgeon that, while recognizing the value of data furnished him by the laboratory, he will relentlessly subject them all to the test of reason and will only decide on his surgical therapeusis when, after a thorough study of all the facts, he has obtained a true perspective of the case.

### Appendicostomy in Pernicious Anemia

DR. L. E. BURCH, Nashville: I wish to report the following case of appendicostomy: The patient, a negro, aged 45, had marked muscular weakness, shortness of breath, instability of pulse and edema of the ankles. He sought relief from diarrhea associated with gastrointestinal symptoms. His mucous membranes were pale; there was brownish discoloration on the skin of hands and face; exhaustion was extreme, without marked emaciation. Examination of the blood showed the red blood cells to be 1,800,000; the white blood cells, 3,000; hemoglobin, 30 per cent. He was given ascending doses of arsenic, reaching as high as 30 drops, three times a day, of Fowler's solution. Colonic irrigations of salt solutions were also used. About three weeks later, the red blood cells were 2,000,000; white blood cells, 5,000, and hemoglobin 50 per cent. Eighteen days later the red blood cells were 1,710,000; white blood cells, 3,500, and hemoglobin, 50 per cent. The nucleated red cells were in great numbers, both normoblasts and megaloblasts, associated with a marked poikilocytosis. At this time 95 per cent. of the bacteria in the stools were anaerobic, and no intestinal parasites were found. A twenty-four hour specimen of the urine showed a trace of albumin, no sugar, and a few hyaline and granular casts. The ethereal sulphates were present in large quantities in the urine, as well as indican and skatol. A test meal showed complete absence of hydrocholoric acid, with the presence of lactic acid. Appendicostomy was suggested, consented to, and performed, with recovery. Conclusions: All patients should have stools examined, in order to determine the presence of the *Bacillus capsulatus aerogenes*. If these bacteria are present in great numbers, then high irrigation, combined with arsenic internally, should be used, and if the patient fails to improve, the appendix offers the best route for thorough irrigation.

#### DISCUSSION

DR. H. S. MCLEAN, Richmond, Va.: Twenty months ago I operated in a case similar to this one. The man had been ill for years. He was brought to me with an acute attack of appendicitis, and in getting his history before operation I was told about his anemia, his continued weakness, and bowel trouble. He had catarrhal appendicitis. I performed appendicostomy. He had been living on zwiebach, buttermilk, etc., for years, but six weeks after operation the red blood count was something over four million. He soon gained fifteen pounds, went to Europe, and is now in excellent health.

### Porro Cesarean Section

DR. F. D. SMYTHE, Memphis, reported a case of Porro Cesarean section, and said that the operation was selected for the following reasons: (1) The rapidity with which the Porro operation could be performed increased the chances of the patient surviving the operation. (2) The remaining ovary was cystic and, in all probability, a cyst of the same character as the large one removed. Such cysts are bilateral in 4 per cent. of cases, and to have permitted it to remain in the event of recovery of the patient would have been to invite a second operation in the near future with its risk to life and effect on purse. (3) This patient was in a condition too much weakened to be subjected to any avoidable risk of the puerperium, hence the Porro operation. The Sanger operation could not have provided the protection which was essential to the salvation of the patient. (4) There will always occur cases demanding Cesarean section

in the interest of the child and mother. In elective cases there should be no infant mortality attending either operation; hence the surgeon should select the operation that subjects the mother to the least risk of losing her life. I am fully convinced that the Porro operation is the safer, and that the surgeon performing the Sanger operation in an honest effort to preserve the reproductive organs will have occasion to congratulate himself now and then on the result of his efforts in that plausible undertaking, but he can not escape the responsibility, at times, of the loss of a mother, whose life could have been saved had the simpler and safer operation been selected at the outset. (5) Myomectomy is attended by a higher operative mortality than supravaginal hysterectomy. Hysterotomy or the Sanger operation is likewise more hazardous than the Porro method for the same reasons, namely, sepsis and hemorrage. During the puerperium, with an expanding and contracting uterus, the dangers from both sources are greatly increased. The surgeon's first duty is to his patient, and only after that duty shall have been fully discharged is he at liberty or justified in considering future generations. So, until I am convinced that the so-called conservative operation is as safe to the mother beyond question as the Porro operation, it will be my practice to choose the latter.

(*To be continued*)

## Medicolegal

### Right to Practice Medicine and Power of State Board to Revoke Certificate—Constitutional Requirements as to Notice

The Supreme Court of Iowa says, in the case of Smith vs. State Board of Medical Examiners, that the power of the State Board of Medical Examiners to revoke the certificate of a physician is contained in the following clause of Section 2578 of the Iowa Code: "The Board of Medical Examiners may refuse to grant a certificate to any person otherwise qualified, who is not of good moral character, and for like cause, or for incompetency . . . may revoke a certificate by an affirmative vote of at least five members of the board." It was claimed that the statute violates the provisions of the federal and state constitutions, which declare that no person shall be deprived of life, liberty, or property without due process of law, and the provision of the state constitution which declares that "the legislative authority of the state shall be vested in a General Assembly, which shall consist of a senate and house of representatives. . . . "

It was contended that the statute is unconstitutional and void because it does not provide or require that the accused shall be notified in any manner of the proceeding to revoke his certificate, or provide or require that he shall be given an opportunity to appear and defend himself; and hence it is possible for the board "to arbitrarily take from the physician his property, and deprive him of the liberty to follow his chosen profession, without due process of law, or without any process."

Whether the right to practice medicine be classed as a property right, strictly speaking, or as a mere privilege, is not material; for, whichever name be given it, it is a valuable right which can not be taken away without due process of law, the essential elements of which are notice and opportunity to defend. But due process does not require that any particular form of proceedings be observed, but only that the same shall be regular proceedings in which notice is given of the claim asserted and an opportunity afforded to defend against it. And, while statutes regulating the practice of medicine clearly fall within the police power of the state, they can not be permitted to override the constitution, but they must be reasonable, and, when a valuable right is sought to be disturbed thereunder, the provision of the constitution prohibiting the taking of property without due process of law is paramount, and must be observed.

In Beebe vs. Magoun, 122 Iowa, 94, in discussing the necessity of notice of the assessment of the cost of street improvements, this court quoted with approval the language of the Court of Appeals in Stuart vs. Palmer, 74 N. Y., 183, as follows: "It is not enough that the owners chance to have notice, or that they may, as a matter of favor, have a hearing. The law must require notices to them, and give them the right to a hearing and the opportunity of being heard." And this rule is, the court thinks, supported by the decided weight of authority and applicable to the question here before it.

But, although a statute may not expressly provide for notice, it will not be held unconstitutional or invalid if the requirement of notice may be fairly implied therefrom. In some of the cases it is said that notice is to be implied from the very fact that it is a constitutional requirement, irrespective of particular provisions in the statutes apparently contemplating that notice is to be given.

Section 2576, Chapter 17, of the Code, relating to the practice of medicine, must be considered in connection with Section 2578 in determining the question before the court, for it relates to the same matter, and that section provides as follows, so far as the same is material here: "The State Board of Medical Examiners . . . shall hold regular meetings in May and November and special ones as may be necessary, due notice thereof being given, at which it shall discharge the duties contemplated by this chapter. . . . In all examinations made or proceedings had pursuant to the provisions of this chapter, any member of the board may administer oaths and take testimony in any manner authorized by law."

The granting of a certificate and its revocation are an exercise of the police power of the state identical in their objects and power. Also by the express terms of Section 2576 the granting of a certificate, or the revocation thereof, can only be done at a regular meeting, or at a special meeting of which due notice has been given. And the court thinks it fairly implies that parties interested in the matters pending before the board shall be given an opportunity to be heard.

The further provision that in all examinations made or proceedings had pursuant to the provisions of the entire chapter oaths may be administered and testimony taken in any manner authorized by law, in the court's judgment contemplates contests which are possible only when all interested parties are before the board. The board does not act in a judicial or legislative capacity in granting or revoking certificates, but it acts in a ministerial or quasi judicial capacity. And in its ministerial capacity it may, without violating Article 3 of the constitution, determine the character of notice and the method and manner of procedure. Every requirement of the law is met if the party be given a fair and reasonable opportunity to be heard.

### "Stationary Corporations" Can Not Be Made Liable for Services Rendered Injured Employés

The Appellate Court of Indiana, Division No. 2, says that Sourwine vs. McRoy Clay Works and another was an action by a physician to recover for professional services rendered an employé of the corporation at the request of the corporation's superintendent. The contract set up was valid only if the facts leading up to it were so unusual and extreme as to impose on the employer a duty analogous to that imposed on railroad companies. Facts of this character were not set up in the complaint.

The law is entirely well settled. Corporations whose "business is stationary" are under no duty "to furnish their workmen with medical services, any more than they should be required to furnish them with their dinner." Cushman vs. Cloverdale Coal & Mining Co. (Ind.) 84 N. E. 759 (reported in the Medicolegal Department of THE JOURNAL, Aug. 29, 1908, pp. 787, 788). This conclusion was authoritatively declared after extended consideration.

The costs and expenses of medical service which might be fastened on innocent stockholders, if the president and general officers of such corporations were given power to incur

obligations of such a character, would probably, in view of the great number of accidents which are constantly happening, be considerable, and the payment thereof might seriously interfere with the attainment of corporate ends. There might be occasional instances in which prompt medical service would be advantageous to the company; but, as a rule, the severity of the injury does not affect the question of its liability, and even should death result from a failure of immediate aid, the amount and basis of liability would not be changed.

Persons employed by stationary corporations, such as coal mining and clay companies, should, if they desire surgical attention, make provisions therefor in advance of accident; for they must know that accidents are liable to happen. If they fail to do so, and their "family, friends and acquaintances" fail to come to their aid, charitable doctors are to be found in every community, responding to that call to which "stationary corporations" are by law deaf.

It is possible that the legislature might burden the exercise of corporate franchises by a condition requiring emergency aid to be given by it to men suffering injury in its service through its negligence, or even through their own; but no such statute, in Indiana, was pointed out. Certain provisions are made in regard to coal mines of the class of the defendant in the Cloverdale Case. But such statutes are in "derogation of the common law," "highly penal" in character, and must, therefore, be "strictly construed," and "not extended by construction"; and the court in that case ignored the statute.

The demurrer of the other defendant, who was the superintendent in question, was also properly sustained. Where one person, acting for another, holds himself out as having authority to do an act, and thereby draws another into a reciprocal engagement, he will be liable if he acted without authority; but if such want of authority was known to both parties, or unknown to both parties—there being a mutual mistake—the agent would not be personally liable. It was not alleged that this agent (the superintendent) was guilty of fraud, of making a false statement, or of concealing information as to his authority; and he was not liable.

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# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### Boston Medical and Surgical Journal

*December 24*

1 *Tuberculosis of the Larynx. A. C. Getchell, Worcester, Mass.
2 *Chronic Gout, with Observations on Gout in General. D. E. Keefe, Springfield, Mass.
3 Epilepsy (concluded). E. Flood, Monson, Mass.

1. **Tuberculosis of the Larynx.**—Getchell believes that the larynx is infected through the blood vessels or lymphatics and not from bacilli deposited on the mucous membrane. Laryngeal tuberculosis is usually a late manifestation of lung disease; he has never seen a primary case, and doubts its possibility. The difficulty of diagnosis of early pulmonary phthisis, while in the larynx it can be seen, explains supposed cases. Hoarseness and pain are the two symptoms particularly denoting laryngeal involvement, but neither is constant or definite. He can not attach to pallor of the larynx the importance as a precursor of tuberculous invasion that is commonly assigned to it; advancing tuberculous disease of the larynx is indicated rather by localized redness than by pallor. He mentions as suggestive of tuberculous processes existing somewhere in the body, a general moistness of the entire larynx, which lacks tone and character; and an alteration of the normal relation of ventricular bands and cords. In general, a thickening of the part of the larynx, be it a ventricular band, cord, or arytenoid, occurring in a person having pulmonary tuberculosis, is to be taken as a mark of the invasion of tubercle into the larynx. Tuberculosis and syphilis sometimes coexist and give rise to confusion. Laryngeal disease occurring in a tuberculous person, is probably tuberculous; in a syphilitic, probably syphilitic. Getchell particularly controverts the idea that of the two classes of cases, the hopeful and the hopeless, it is our duty to keep our hands off the hopeless. That is what we used to do in pulmonary tuberculosis, but since we have kept our hands on all cases we have found that many of the hopeless ones have become hopeful. The treatment of the tuberculous larynx is primarily the treatment of the patient, and secondly of the larynx. Cough must be controlled by rest, open air, soothing inhalations, suggestion, and by opium only if other measures fail. An excellent treatment for tracheal catarrh is intratracheal injections of guaiacol, grains 20 (grams 1.30); menthol, grains 40 (grams 2.60), and olive oil, one ounce (grams 27). He divides cases into three classes for the purpose of treatment. First, moderate involvement, with active inflammation with or without ulceration, with pulmonary lesions and constitutional symptoms. Second, localized areas of infiltration or ulceration without active inflammation, with inactive pulmonary lesion, and without marked constitutional symptoms. Third, marked extensive involvement, particularly of the arytenoids with gray infiltration, and of the epiglottis. The first class is dealt with by the best hygienic conditions in a sanatorium, with complete silence and control of cough, antiseptic cleansing sprays, and bland inhalations; on subsidence of inflammation, astringent and antiseptic applications. For ulceration iodoform powder is insufflated. For the second class more active treatment is recommended. For ulcerations, lactic acid, following cleansing sprays, and the destruction of localized areas of infiltration. Relief of pain and difficulty of breathing are the points that call for attention in the third class.

2. **Gout.**—Keefe discusses the effect of uratic deposits on bone and cartilage, effects of opening or puncturing tophaceous masses, the cause of deposition of urates in joints and other tissues, and the condition of urinary organs. In regard to treatment, he insists on an abstemious life. He advises eschewing alcohol in all its forms; avoiding game, dark meats and such as contain large quantities of purin, and avoiding exposure to cold and damp atmospheres. He also recommends an occasional short course of alkalies and purgatives and active exercise out of doors. Curative treatment demands for a time liquid diet and a limited list of medicines, such as thymic acid, as recommended by Schmoll, 20 cgm. (3 grains) three times daily; piperazin, 30 cm. (5 grains) four times daily. A hypodermic of morphin may be given if necessary for excruciating pain, and the following prescription will do very well:

| | | |
|---|---|---|
| Sodii phosphatis | 10 | ℥iiss |
| Sodii salicylatis | 15 | ℥iiiss |
| Sodii bicarbonatis | 10 | ℥iiss |
| Fluidextracti cascaræ | 4 | ℥i |
| Tincturæ cardamomi co. | | |
| Tincturæ colchici sem., āā | 10 | ℥iiss |
| Infusi tritici, ad | 120 | ℥iv |

Misce. Signa.: A dessertspoonful four times daily.

### New York Medical Journal

*December 26*

4 Influence of Alcohol on the Public Health. F. Peterson, New York.
5 Hydrocephalus. S. D. Ludlum, Philadelphia.
6 *Diagnosis of Acute Miliary Tuberculosis. S. von Ruck, Asheville, N. C.
7 Opsonic Theory. A. C. Mercer, Syracuse, N. Y.
8 *Constitutional Inferiority. H. W. Wright, New York.
9 Soft Tissue Roentgenography. H. Hulst, Grand Rapids, Mich.
10 Severe Ivy Poisoning. R. F. Ward, New York.

6. **Miliary Tuberculosis.**—Von Ruck reviews in detail the diagnosis of acute miliary tuberculosis and emphasizes the following points as of real value in its distinctive diagnosis from other affections:

1. The rapid emaciation which is a striking feature in almost every case, and which is out of all proportion to the degree of fever, the state of the digestive organs, and the amount of food taken.

2. The bronchiolitis of acute miliary tuberculosis of the lung is characteristic in that the catarrhal signs appear first in the smaller and then extend to the larger bronchi, instead of in the reverse order as in ordinary bronchitis. In further contrast to ordinary bronchiolitis the lower posterior portions of the lung in acute miliary tuberculosis are often less involved than the upper.

3. Cases in which typhoid fever is minutely simulated by acute miliary tuberculosis or in which the two diseases coexist are rare, and a careful study of the pulse, temperature, and respiration will usually lead to a correct distinction.
4. Serum reactions are reliable when present in well marked degree, but tuberculous patients may show a modified Widal reaction, and the Arloing-Courmont reaction is not always present in tuberculosis.
5. The ocular test as applied by Calmette and the cutaneous application of tuberculin according to the method of v. Pirquet, while not yet established as thoroughly reliable, are safe and one or both should be employed in all doubtful cases, especially if the subcutaneous injection of tuberculin is contraindicated.
6. Bacteriologic examinations of the blood, feces, and secretions may be of great aid in doubtful cases.
7. The appearance of chorioid tubercle or miliary tubercle of visible mucous membranes in the course of the disease removes all doubt.

8. **Constitutional Inferiority.**—The cases considered in Wright's paper are types of individuals whom we can immediately place for convenience between the imbecile class and the dementia præcox group. He discusses the extent of their dependence on heredity and environment respectively and summarizes the etiologic element by saying that they are exaggerations of normal, universally constitutional tendencies, becoming manifest in certain individuals because of their lack of inhibition, this lack being due both to unfavorable environment and to hereditary defect. From a study of six cases, all in women, the most helpful distinguishing points from dementia præcox are as follows::

1. A reaction to some definite cause, usually allopsychic, this reaction being somewhat similar to the normal, but different in that it is an abnormally exaggerated type of reaction such as would not occur in a well balanced individual; i. e., a reaction to environment, *not an autopsychic* disintegration of personality.
2. Frequent occurrence of such reactions subside with removal of the exciting cause and leave the patient unchanged from the usual standard; i. e., absence of deterioration.
3. A history of abnormalities of condition from an early age, the individual never having been considered quite normal. This is contrary to the usual history of dementia præcox.
4. No loss or impairment of that part of the intellect having to do with memory, orientation, and application of previously acquired general knowledge.
5. No marked affection of the sensorium.
6. No marked incoherence or blocking of thought or dreamlike condition accompanied by fantastic delusions or disassociations of personality, such as manifested in katatonia and other forms of dementia.

From idiocy and the low grade or average type of imbecile it seems unnecessary to take up much time in making a distinctive diagnosis.

### Medical Record, New York

*December 26*

11 *Tuberculosis Among the Jews. M. Fishberg, New York.
12 *Italian Immigration and Insanity. A. W. Ferris, New York.
13 The Opiate Habit. W. F. Waugh, Chicago.
14 Early Diagnosis of Gastric Carcinoma. A. Bassler, New York.
15 *System and the Doctor. L. K. Hirshberg, Baltimore.
16 Pansinusitis Dextra with Paralysis of the Right Vocal Cord. I. W. Voorhees, New York.
17 Prevention of Hemorrhage During Operations on the Nose and Throat. H. H. Pelton, New York.

11. **Tuberculosis Among the Jews.**—Fishberg reviews the various theories that have been adduced to explain the comparative immunity of the Jews to tuberculosis. He points out that it is the country dweller after immigrating to the city who has most chances to contract contagious diseases, particularly tuberculosis. All such diseases, in fact, when imported into a place where they were previously unknown attack almost everybody. For 2,000 years the Jews have lived almost exclusively in cities, and during medieval ages were confined in the worst parts of cities, the Ghettos. They have therefore passed through a process of infection during past centuries, hence their lower mortality to-day from tuberculosis. Even when infected, the prognosis is more favorable in the Jew than in other people. The course of the disease is slower. Acute miliary tuberculosis is very rare. There are, however, indications that this advantage of the Jew is not permanent.

12. **Italian Immigration and Insanity.**—Ferris reviews the origin and conditions of existence of the classes of Italians who form the immigrant element in this country, and examines the many factors that combine to influence or modify the physical and mental development of the Italian people who come to our shores and weighs their temperamental and acquired mental traits. He discusses the kind of occupation they adopt, and their relation to the insane in the light of Dr. Salmon's remark, that under the unusual stress of the first ten years in the United States many thousands of immigrants are destined to become insane. Ferris contends that this statement does not apply to the Italian immigrants. As a rule, they are temperate and cheerful, and, while often illiterate, make good citizens, the second generation being bright and intelligent. Moreover, the Italian government is doing all that it can to prevent its sick and insane being sent away, and is caring for them at home.

15. **System and the Doctor.**—Hirshberg regrets the lack of system so generally found among physicians, and describes his own method of systematic record derived from Dr. Osler's instruction, by means of separate card indexes for case records, libraries and journal references, professional accounts and personal papers and accounts. He suggests the great advantage of employing a stenographer to take charge of the accounts and these records. He sends a personal letter every year to patients who have not called on him for twelve months, to learn the subsequent course of their illness, thus keeping his records up to date and at the same time delicately ascertaining which patients have drifted into other hands. The index cards of these latter are removed and destroyed.

### Lancet-Clinic, Cincinnati

*December 19*

18 Obstruction of the Bowel. C. T. Souther, Cincinnati.
19 Enterostomy—Its Value in Intestinal Obstruction. E. M. Gilliam, Columbus, Ohio.
20 *Some Object Lessons in Otology for the General Practitioner. J. A. Stucky and S. B. Marks, Lexington, Ky.

20. Abstracted in THE JOURNAL, Nov. 21, 1908, p. 1807.

### Medical Fortnightly, St. Louis

*December 25*

21 Notes of Travel in Europe—Railroads. A. L. Benedict, Buffalo.
22 Impetigo. W. S. Gotthell, New York.
23 Diet in Hyperacidity. J. M. Bell, St. Joseph, Mo.

### American Journal of Medical Sciences, Philadelphia

*November*

24 Gallstone Disease. J. B. Deaver, Philadelphia.
25 *Ascites in Typhoid Fever. A. McPhedran, Toronto, Canada.
26 *Lobar Pneumonia. G. W. Norris, Philadelphia.
27 *Pharmacology of Heart Stimulants. H. C. Woods, Philadelphia.
28 *Ataxia of the Heart Muscle. E. Schmoll, San Francisco.
29 Interpretation of the Venous Pulse. G. Bachmann, Philadelphia.
30 *Fatigue in School Children, as Tested by the Ergograph. R. G. Freeman, New York.
31 *Diagnostic Value of Cutaneous Hyperalgesia (Head's Zones) in Abdominal Disease. C. A. Elsberg and H. Neuhof, New York.
32 Tumor of the Gasserian Ganglion. Report of Two Cases with Necropsy. W. G. Spiller, Philadelphia.
33 Etiologic Importance of Abnormal Foot Posture in Affections of the Knee. D. Silver, Pittsburg.
34 Ricin Method of Jacoby-Solms for the Quantitative Estimation of Pepsin. E. H. Goodman, Philadelphia.

25. Abstracted in THE JOURNAL, June 6, 1908, p. 1930.

26. **Lobar Pneumonia.**—Norris' study is based on a consideration of 445 cases in the Philadelphia General Hospital between Feb. 1, 1905, and Dec. 23, 1907. He was led to collect the present series of statistics by the fact that a considerable number of patients who appeared clinically to be hopeless cases recovered. Aside from the constantly opened windows and doors there has been no innovation in the method of treatment employed. For the most part treatment has been symptomatic, mainly sedative or stimulating as the individual case demanded. In regard to alcohol, while it seems to have been shown by Bachman that alcohol possesses no power of sustaining action on the rabbit's heart, it does seem to be a fact based on prolonged clinical observation that habitual topers, when attacked by pneumonia, are often benefited by a reasonable amount of the drug. In regard to alcohol and strychnin, however, it seems to him that in the average cases perhaps too much stimulation has been employed. Eserin has been employed beneficially in a number of cases in which there has been marked tympanites. Sponging with cold water has been used frequently with good results not only to reduce temperature but to tone the nervous system. Personally he has never been convinced that digitalis accomplished anything in patients having any considerable degree of fever. Of complications, among 445

cases acute pericarditis occurred 8 times, always fatally; acute endocarditis 3, also fatally; empyema 2, one case fatal; pulmonary abscess 2, one case fatal; meningitis 3 cases, with 2 deaths; acute arthritis, 3 cases, with 2 deaths; otitis media, 6 cases, 1 death; parotiditis, 1 case, with recovery; acute peritonitis, 1 case, with death; acute cholitis, 4 cases, all fatal; left femoral phlebitis, 1 case, with eventual recovery. He discusses the result of urine and sputum examination and leucocyte counts, and cites three cases of ether, or operative, pneumonia which terminated fatally. He thinks that any one who has the courage to try the fresh air treatment and sufficient persuasive power over the patient's relatives to allow it to be tried, will never abandon it.

27. **Heart Stimulants.**—Wood confines his consideration to the digitalis group—digitalis, strophanthus, squills, apocynum and adonidin. The following factors in the action of these drugs interest clinicians:

1. The stimulant influence on the cardioinhibitory mechanism which prolongs the diastole and thus slows the pulse.
2. The increase in the tonicity of the heart muscle leading to a more complete and more powerful systole.
3. The constriction of the blood vessels.

The dicrotism, the incomplete diastole, and the coordination of the heart, which are produced by very large doses of digitalis, are toxic manifestations and of more minor importance to the therapeutist. Wood regards the action of digitalis in slowing the pulse as more important in heart disease than is generally supposed. The important effect of digitalis in increasing the muscular vigor of the heart he thinks due to the fact that its influence is much more felt in the left ventricle than elsewhere, a fact of importance in certain cases of mitral regurgitation when the ventricular muscle is more hypertrophied than that of the auricle. As to the vasoconstricting influence, while more force is required to drive blood through narrow than through dilated arteries, in many cases the vascular contraction is a conservative effort to maintain circulatory equilibrium, but when there are degenerative changes or extreme dilatation, increased resistance to the flow of blood may work great damage. Clinicians should not be too hasty in trying to dilate the vessels in chronic heart disease. The available agents all increase the pulse, thus counteracting the heart-slowing action of digitalis. The reason that more harm is not done by nitroglycerin in heart disease is because of the infrequency of its administration as compared with the rapid exhaustion of its action. Squills and apocynum he dismisses as of practical utility only in selected cases because of their irritant action on the gastrointestinal tract and kidneys. He has sought in vain for evidence of the belief that strophanthus differs from digitalis in the absence of influence of the blood vessel. It has, however, the advantage that it is not cumulative. Adonidin is a remedy of promise, but though it has been before the profession thirty years, it remains still in the stage of promise. As to the use of active principles, he holds that if there be any single principle representing completely the therapeutic virtues of digitalis, it is not digitoxin, which is the most dangerous and the most cumulative, more active in its vasomotor effects than either digitalis or strophanthus, and he cites Kakowski's experiments to show that neither digitalin, digitalein nor digitoxin can induce the cardiac contraction effected by digitalis.

28. **Ataxia of Heart Muscle.**—Schmoll reviews the modern literature and concludes that we must distinguish between two varieties of dissociation of the activity of the ventricles: 1, Hemisystole, consisting of alternating contractions of the left and the right chambers of the heart; and 2, partial contractions of the heart muscle, for which he proposes the name of "ataxia of the heart." He describes a case in which dissociation of the activity of the ventricles was found, and gives the tracings. As in locomotor ataxia the coordination of the different parts of the muscles of the limbs has been lost, so in ataxia of the heart the cooperation of the different parts of the heart muscle is lost. How the circulation can be kept up effectively under such conditions is a marvel to anybody who has carefully analyzed the action of such a heart. Investigation of ataxia of the heart will certainly show that partial contractions of the ventricle occur frequently in perpetual arrhythmias, and that a large number of symptoms observed in these cases can be explained only by partial contractions of the ventricles.

30. **Fatigue in School Children.**—Freeman discusses the testing of school children for fatigue in New York by means of the Crampton test, the Storey ergograph, and the Mosso ergograph combined with an adder as used in the Chicago schools. He regards the last as the most reliable instrument, but adds that the ergograph, so far as his work indicates, is of no value in modifying the school day in the public schools of New York for the average student, but might be shown to be of value in lightening and controlling the work for those pupils who give evidence of marked fatigue during the school day.

31. **Cutaneous Hyperalgesia in Abdominal Disease.**—Ellsberg and Neuhof discuss this subject very exhaustively and formulate the following conclusions:

1. We agree in the main with the statements of Head, that there are present in many affections of the abdominal viscera, constant and definite areas or zones of cutaneous hyperalgesia.
2. These zones may vary somewhat in extent and in outline, but they have a characteristic location.
3. The presence of a characteristic zone is an evidence of an affection of the corresponding abdominal viscus, although not of necessity the affection which is causing the symptoms.
4. The zones are present in a large percentage of patients with acute affections of the appendix, of the gall bladder, of the uterine adnexa, and are of considerable value in the diagnosis of these acute affections.
5. Zones are frequently present in acute disease of the other abdominal viscera, and when present aid in making the correct diagnosis.
6. Cutaneous hyperalgesia may appear in acute abdominal disease. Its presence is no index of the gravity of the lesion. Its sudden disappearance may be of grave significance.
7. In the absence of all other localizing signs or symptoms, the zone may indicate the organ that is affected. In most instances, however, it must not be used to make the diagnosis, but only as a diagnostic aid, to substantiate conclusions reached from a consideration of all the symptoms and signs.

### Journal of Medical Research, Boston

*November*

35 *Curative Influence of Extracts of Leucocytes on Infections in Animals. P. H. Hiss, New York.
36 *Precipitation of Bacterial Extracts by Extracts of Leucocytes. P. H. Hiss and H. Zinsser, New York.
37 *Mechanism of Protection by Leucocyte Extracts. H. Zinsser and P. H. Hiss, New York.
38 *Twenty-four Cases of Epidemic Meningitis Treated with Leucocyte Extract. P. H. Hiss and H. Zinsser.
39 *Treatment of Lobar Pneumonia with Leucocyte Extract. P. H. Hiss and H. Zinsser.

35 to 39. Discussed editorially in THE JOURNAL, Dec. 12, 1908, p. 2062.

### Illinois Medical Journal, Springfield

*November*

40 *Placenta Prævia. F. D. Hollenbeck, Chicago.
41 Extrauterine Pregnancy and Retrouterine Hematocele. A. B. Keyes, Chicago.
42 Case of Extrauterine Pregnancy. A. B. Eustace, Chicago.
43 Obstetrical Work by the Country Doctor. C. B. Brown, Syracuse, Ill.
44 *Fetal Death *in Utero*. C. G. Smith, Red Bud, Ill.
45 *Psychic Aberrations Associated with Diseased Prostate. J. F. Percy, Galesburg, Ill.
46 New Unit of Energy in Infant Feeding. T. G. Allen, Chicago.
47 Influence of Specialism on the General Practitioner. D. W. Reid, Jacksonville, Ill.
48 *Climate Fallacy. L. S. Peters, Silver City, N. M.
49 Borderline of Mental Disease. F. P. Norbury, Jacksonville, Ill.
50 Problem of the Public Care of the Insane. A. Meyer, New York.

40. **Placenta Prævia.**—Hollenbeck holds that considering the high fetal mortality under any or all forms of treatment, and that although we may deliver a living child, few survive beyond the second or third week, and that of those who do survive, few become robust; and considering also that it is granted that the best procedure for the mother is worse for the child, and *vice versa*, it is incumbent on us, if any form of treatment assures a low maternal mortality, to adopt that treatment. The best results so far attained are by terminating pregnancy immediately on a diagnosis of placenta prævia, by bringing down a foot and leaving Nature to complete the labor. As great precautions and preparations are necessary as though laparotomy were to be performed. If the head present external version may be attempted. That failing, when the cervix is dilated suffi-

ciently to admit two fingers, the method of Braxton Hicks or combined version can be done. This operation in transverse and breech presentations varies only in degree, but the object and results are the same.

44, 48. Abstracted in THE JOURNAL, June 27, 1908, p. 2152.

45. **Prostatic Psychoses.**—Percy reports three cases, which he thinks indicate that there is a clinical physiopathology of the prostate which expresses itself chiefly through the cerebrospinal and sympathetic nerves as a functional disease, just as the perverted physiology of the thyroid gland expresses itself through the same system of nerves with the same results, so far as a mere brain expression is concerned.

### Journal of the Indiana State Medical Association, Fort Wayne

*November*

51 Scoliosis. D. Ross, Indianapolis.
52 *Obstruction of the Bowels from Traumatism. J. H. Ford, Indianapolis.
53 Relation of Physicians and Druggists. S. E. Earp, Indianapolis.
54 Relation of the Pharmacist to the Physician. J. R. Francis, Indianapolis.
55 *Plea for State Control and Treatment of Dipsomania, Inebriety and Drug Addiction. A. L. Wilson, Indianapolis.
56 Atypical Pneumonia. C. R. Sowder, Indianapolis.
57 Dermoids. H. G. Nierman, Fort Wayne.

52. **Traumatic Obstruction of Bowels.**—Ford discusses the diagnosis and etiology of traumatic intestinal obstruction, giving peritonitis first place. The most serious condition is postoperative ileus. If the bowel can not be moved by laxatives, surgical intervention is the only recourse. Ford reports a case in which obstruction followed pus appendicitis. He believes that many cases of postoperative ileus could be relieved by thoroughly washing the intestinal tract. In obstruction due to traumatism operation must be prompt before peritonitis sets in.

55. **State Control in Dipsomania, Etc.**—Wilson urges absolute control, which can be secured only by legislative enactment, together with good hygienic surroundings, a pleasant environment, good feeding, clothing and housing, with proper medical treatment for a sufficient length of time as curable measures in curable cases. State guardianship is more feasible than municipal or county. An institution such as he suggests should be founded on broad general principles, and to reach all who should come under its influence, it should have the moral and financial support of the state, should be primarily a hospital, free from political and mercenary control, under competent medical management having full powers and right of selection of assistants and subordinates. Its doors should be open to all who sufficiently long have been residents of the state. Admittance, both voluntary and by legal commitment; but once in, all patients should be subject to the same rules and regulations. In regard to the incurable cases, Wilson says: "Give the father a chance to recover from his excesses and again to assume the responsibilities of life. But if he proves to be incorrigible and will not do the right, then free the family from his presence and the responsibility of his support. There is a law now in this state (Indiana) constituting child desertion a felony. This is right; but if child desertion, in the sense of a parent separating himself from his child and leaving it without support, is a felony with a penalty attached, what shall be said of the man who not only fails to provide for his wife and children, but adds the burden of his own support, besides other abuses he too often heaps on them?"

### California State Journal of Medicine, San Francisco

*November*

58 *Cancer of the Uterus, How May We Secure Its Early Recognition? W. F. Wakefield, San Francisco.
59 Indications for Mastoid Operation. D. H. Trowbridge, Fresno.
60 The Pure Milk Problem. G. H. Kress, Los Angeles.
61 Sanitary Supervision of Bakeries and Restaurants. L. M. Powers, Los Angeles.
62 *Luetic Stigmata of Importance to the General Practitioner. H. C. Moffitt, San Francisco.
63 Syphilis as Seen by the Eye, Ear, Nose and Throat Specialist. H. G. Thomas, Oakland.
64 Syphilis of Bones and Joints. S. J. Hunkin and G. A. Harker, San Francisco.
65 Early Recognition and Treatment of Squint. W. F. Blake, San Francisco.

58. **Early Recognition of Cancer of Uterus.**—Wakefield makes the following suggestions:

1. Every woman should be examined by her accoucheur, after uterine involution has taken place, to ascertain if any material injury to the cervix has resulted from the labor; and if material injury is found, the cervix should either be repaired at once, or the patient required to present herself for examination once or twice a year, so that repair may be advised before the patient's future is menaced, should chronic inflammatory changes supervene.

2. All chronic lacerations of the cervix with concomitant inflammatory sequelæ should be repaired at once; all chronic inflammations of the cervical or corporal mucous membrane should receive appropriate treatment; all interstitial or submucous tumors of the uterus should be removed.

3. Physicians should keep themselves constantly mindful of their responsibility in the matter. A small piece of tissue should be excised from any suspicious looking patch on the cervix and subjected to histologic study, even though no symptoms pointing to cancer are present. All abnormal hemorrhages should be thoroughly investigated, and, if no cause is evident on ordinary examination, the uterine cavity should be thoroughly curetted and serial sections made of the pieces of mucous membrane thus obtained, in an effort to prove or disprove the presence of adeno-carcinoma of the body or upper cervical canal.

4. Women should be educated to understand that danger attends the neglect of cervical injuries and chronic uterine inflammations; that every woman who has borne children may have such injury or such inflammation; that it would be wise for all women thus informed to ascertain from some competent physician whether any pelvic condition exists that would menace her future. Indeed, women would subserve their own best interests if they would make annual or semiannual visits to some good, wise physician, as a prophylactic measure, during the cancer period.

5. Women must be taught that excessive bleeding is never a coincident of the normal menopause, but is a symptom of great import, which should be immediately investigated.

6. A cancer committee should be appointed by the presidents of our different state medical societies, the duty of which will be to study the question generally and evolve the best means of keeping the profession in touch with the subject and furthering, in some dignified and practical way, the dissemination of such knowledge as should be possessed by intelligent women.

62. **Luetic Stigmata.**—Moffitt discusses in detail the stigmata shown, respectively, by the facies, skin, glands, bones, nose, mouth, eye, vascular system, nervous system and also certain unclassified signs, particularly in regard to their importance for the general practitioner.

### Journal South Carolina Medical Association, Greenville

*November*

66 *Etiology of Pellagra—The Italian Maize Theory, or the Theory of Lombroso. J. J. Watson, Columbia, S. C.
67 *Protozoan Theory of Pellagra. J. H. Taylor, Columbia, S. C.
68 *Pellagra—Problems in the Study of Its Etiology. E. J. Wood, Wilmington, N. C.
69 Etiology of Pellagra. N. M. Moore, Augusta, Ga.
70 Roumanian Theory as to the Cause of Pellagra. J. L. Thompson, Columbia.
71 *Diagnosis and Treatment of Pellagra. J. W. Babcock, Columbia.
72 Pathology of Pellagra. H. H. Griffin, Columbia.
73 *Clinical Observations of Pellagra. H. E. McConnell, Chester, S. C.
74 Four Cases of Pellagra. G. A. Neuffer, Abbeville, S. C.
75 *Personal Experience with Some Cases of Nervous and Mental Diseases Showing the Pellagra Syndrome. I. M. Taylor, Morgantown, N. C.
76 Examination of the Eyes in Eighteen Cases of Pellagra. E. M. Whaley, Columbia.
77 *Theory as to the Cause of the Recent Appearance in This Country of Pellagra. J. McCampbell, Morgantown, N. C.

66. **Pellagra.**—Watson describes the maize theory of Lombroso and the experiment on which it is based.

67. **Idem.**—Taylor marshals the points against the maize theory and discusses the similarity of pellagra and protozoan disease. He thinks it likely we may yet find pellagra to belong to the latter class.

68. **Idem.**—Wood suggests that the corn, whether diseased or sound, may form a culture medium on which an organism specific to the disease grows and develops. This would explain the advantage of heating the corn. The *Acarus farinæ* may possibly play a part in the entrance of this suspected organism into the kernel of otherwise sound corn.

71. **Idem.**—Babcock says that evidence is accumulating of the existence of pellagroid disease in North Carolina, South Carolina, Georgia, Alabama and Tennessee. It has been sporadically observed in Louisiana, Texas, Arkansas and Virginia. It presents both resemblances and striking differences to the Italian and Egyptian forms. Among the latter are the overwhelming number of females attacked, the great and early mortality, and the unusual invasion by the rash of unexposed parts of the body. By exclusion we are driven to a diagnosis of, possibly, pellagra. The association in all the author's cases can not be denied. The communica-

bility calls for investigation. Atoxyl seems to hold out the best hope from drugs, but Fowler's solution can not be cast aside.

73. **Idem.**—McConnell asks for the disuse of such terms as "awful," "dreadful," and "leprous," as applied in the newspapers to pellagrous patients. The terms are not justifiable and they have a very depressing effect on the patient.

75. **Idem.**—Taylor holds that pellagra has been with us for a long time, and that we have been misled by the brevity of the text-book statements. He is sure that he has been seeing these cases for 20 years, and that many such have been seen and dismissed under diagnoses of chronic diarrhea, intestinal indigestion, eczema and sunburn. Many so-called scrofulous negroes are really pellagrous.

77. **Idem.**—McCampbell suggests that the present-day methods of intensive farming may be responsible for the recent appearance of pellagra in this country. It is a very common practice to cut the corn, stalk and all, at the ground, often in a state of immaturity, in order that the ground may be planted with some other crop, usually wheat or rye, and this corn is packed wet and possibly green, in a shock, where conditions are favorable for fermenting and heating and possibly the development of the products which give rise, when eaten, to the disease. This method of harvesting is in contrast to that prevailing some years ago, when it was the custom to cut the top just over the ear, leaving the ear and remainder of the stalk to stand in the field until they were both fully matured and perfectly dry, before gathering. At this time nothing was cut as before described, except a late crop to escape the frost, and this was usually fed to horses and cattle, being considered unfit for bread, and it is suggestive that, while pellagra was unknown, "blind staggers" in domestic animals was comparatively common. Further confirmation of this theory is found in the fact that in Italy, and especially in the Lombardy and Piedmont districts, the hot bed of pellagra, the manner of harvesting corn is somewhat similar to that now prevailing in this country, inasmuch as owing to climatic conditions it is necessary to gather corn in a partially green state, or at least in a condition necessitating further drying; and McCampbell understands that the Italian government has issued special instructions for this procedure, recognizing that it was in a faulty curing process that the poison developed.

### Cleveland Medical Journal

*November*

78 Experience with the Cutaneous Tuberculin Reaction and the Findings in Two Hundred Postmortems on Children. C. von Pirquet, Vienna.
79 Malnutrition. M. J. Lichty, Cleveland.
80 *Mechanics of Lateral Curvature (concluded). H. O. Feiss, Cleveland.
81 Medical Progress in the Orient. I. Ludlow, Cleveland.

80. **Lateral Curvature.**—Feiss in this issue concludes his serial article by the following restatement of his principles: There are certain conditions in normal posture in which asymmetric forces bear on the skeleton. These strains in the skeleton may best be studied in terms of distortion, although, of course, no permanent distortion takes place in the normal. In this way it is found that the peripheral stresses are of great significance, implying tendencies (as read in terms of distortion), which are suggestive of the fixed distortions seen in the pathologic skeleton. But to explain those pathologic facts on a basis of normal tendencies we have to assume that the vicious forces become so great in relation to the skeletal resistance, that the bones which are under strain finally take a permanent set. This may readily be supposed on the grounds of repetition, prolongation or diminished resistance in the skeleton. On these assumptions we may understand how certain deformities take place directly. Such direct deformation, however, seems to occur only in a given part—namely, in the thorax, so that following this, the body mass as a whole must readapt itself to conditions of erect balance. This implies a second adjustment of the deformed thorax to the rest of the body, and this is the final adjustment which is said to represent the state of lateral curvature.

### Southern California Practitioner, Los Angeles

*November*

82 Vaccines and Sera. E. L. Leonard, Los Angeles.
83 The Opsonic Technic. J. E. Pottenger, Monrovia.
84 Opsonic Index—A Technic Utilizing the Ordinary Incubator. G. H. Kress, Los Angeles.
85 Rôle of the Immunizator in Modern Medicine. G. Martyn, Los Angeles.
86 Effect of Climatic Conditions on Important Symptoms in Tuberculosis. C. C. Browning, Monrovia.
87 Illustration of a Localized Traumatic Lesion of the Cortex. W. W. Watkins, Phoenix, Ariz.
88 *Gastroptosis in Tuberculous Patients—A Report of Fifty Cases. B. Reed and F. N. Robinson, Los Angeles.

88. **Gastroptosis in Tuberculous Patients.**—Reed and Robinson report and discuss a large series of cases of gastroptosis in tuberculous subjects. Of 221 patients under treatment (men 108, women 113), 133 were carefully examined abdominally, on account of gastrointestinal symptoms. In 50 (women 28, men 22) or 37.6 per cent., there was more or less prolapse of the stomach. In 44 of the 50 cases the lower border of the stomach was at or below the umbilicus. In 6 of 28 cases in women and 6 of 22 cases in men, the lower border rested on the pelvic viscera, and in only 4 cases in women and 2 cases in men was it above the umbilicus. In 10 cases (9 women, 1 man) the gastroptosis was accompanied by movable right kidney. The authors conclude that in all known tuberculous cases we should search for and correct any existing visceral displacement as a helpful preliminary to the cure of the major disease; and to prevent the development of tuberculosis in persons predisposed thereto by reason of lowered nutrition, the same precaution is equally important.

### Atlanta Journal Record of Medicine

*November*

89 *Long and His Discovery. I. H. Goss, Athens, Ga.
90 Should the Appendix be Removed in All Cases in which the Abdomen is Opened for Other Causes. L. C. Fisher, Atlanta, Ga.
91 Reciprocity Between States. A. A. Kent, Lenoir, N. C.
92 Amebic Dysentery. G. M. Niles, Atlanta, Ga.
93 Importance of a Thorough Knowledge of Biology, Bacteriology and the Circulation of the Blood for the Successful Application of Serotherapy. J. C. Grady, Kenly, N. C.
94 Tuberculous Patients Treated with Ichthyolated Emulsion Compound. J. R. Williams, Greensboro, N. C.
95 Serotherapy in Tuberculosis. L. C. Rouglin, Atlanta, Ga.

89. **Long and Ether Anesthesia.**—Goss gives a biographic note of Crawford W. Long and champions his claim to the discovery of ether anesthesia, bringing forward evidence to show that he used it in practice in 1843. He ascribes Long's not at once publishing his discovery to the fact that he was a young medical practitioner in an obscure village without hospital or association backing to confirm his results, and that so startling a claim would have exposed him to the adverse criticism of his elders. Circumstances were entirely different 65 years ago from what they are to-day with regard to the publication of discoveries.

### St. Paul Medical Journal

*November*

96 The Tubercle Bacillus and Its Mode of Action. F. F. Westbrook, Minneapolis.
97 Early Diagnosis of Pulmonary Tuberculosis. W. J. Marcley, Walker, Minn.
98 Treatment of Patients with Pulmonary Tuberculosis, Discharged from a Sanatorium. H. L. Taylor, St. Paul.
99 Tuberculosis of the Skin. B. Foster, St. Paul.
100 Surgical Tuberculosis. W. Courtney, Brainerd, Minn.
101 *Ventilation. E. R. Swan, Cedar Rapids, Ia.

101. **Ventilation.**—Swan discusses ventilation in general, and in particular says that the subject of ventilation of cars has been agitated for years, and yet nothing has been done toward adequate ventilation. That this can be done there is no doubt, but it never will be done until the government investigates and compels the railroads to ventilate their cars. In the meantime, millions of lives are being endangered by breathing impure vitiated air. The ravages of tuberculosis will never be eradicated until we have better sanitation in the homes, schools and railway cars of the country. We can not build sanitariums enough to prevent tuberculosis so long as the breeding places for the disease are allowed to exist. Until compulsory ventilation laws are passed and strictly enforced, tuberculosis will prevail.

### New Orleans Medical and Surgical Journal

*November*

102 Clinical Results with Antistreptococcus Serum. W. D. Rousel, Patterson, La.
103 *Fracture of the Patella; Radiographic Illustrations of Results of Treatment by Suture. J. M. Batchelor, New Orleans.
104 Subacute or Chronic Joint Disease, Non-Tuberculous. Diagnosis and Treatment. E. S. Hatch, New Orleans.
105 Infectious Arthritis. J. T. Halsey, New Orleans.
106 Clinical Significance of Growing Pains in Children. W. W. Butterworth, New Orleans.
107 Congenital Ichthyosis with Report of a Case. J. J. Wymer, New Orleans.
108 Indicanuria in Childhood. Report of a Case. E. D. Fenner, New Orleans.

103. **Fracture of the Patella.**—Batchelor relates his experience in dealing with eleven cases of fracture of the patella, and gives radiographic illustrations in seven cases. He formulates the following conclusions:

1. Bony union rarely takes place before the expiration of thirty days.
2. Bony union is possible when there is, after suture, a separation of the fragments equal to three-eighths of an inch.
3. Whenever general anesthesia is directly contraindicated, such patients may be operated on with the employment of local analgesia and bony union may be confidently expected.
4. The usual requirements of the operation are, first, preliminary fixation of the joint for from forty-eight to seventy-two hours, to allow complete arrest of hemorrhage; secondly, suture of the lateral tear of the capsule, thereby restoring the reserve extensors and obviating the danger of atrophy of the quadriceps; thirdly, absolute asepsis and immediate closure of the joint without drainage.

### St. Louis Medical Review

*November*

109 *Practical Notes on Vesical Tumors. G. F. Lydston, Chicago.
110 *Theory, Technic and Practical Results of the Reaction for the Serodiagnosis of Syphilis. J. W. Marchildon, St. Louis.
111 Ocular Tuberculin Reaction. Observations of One Hundred Cases with a Summary of the Observations of Others. A. W. McAlester, Kansas City, Mo.
112 *Influence of Suggestion as an Adjunct in the Administration of Anesthetics. H. S. Munro, Ellaville, Ga.

109. **Published** in the *Lancet Clinic*, Nov. 28, 1908, and *Louisville Monthly Journal of Medicine and Surgery*, December, 1908; abstracted in THE JOURNAL, Dec. 19, 1908, p. 2186.

110. **Serodiagnosis of Syphilis.**—Marchildon traces the history of our recent acquirements in the knowledge of syphilis, and especially of the Wassermann reaction. He describes the technic, discusses its practical results, and sums up its uses as follows:

The reaction is of value in all cases in which an ulcer has been present on the genitalia, the nature of which is not clear.

Within certain limits the negative reaction is valuable. If there is a tumor or an infection with symptoms, with a negative serum reaction, we can conclude that it is not syphilitic, that it is not a gumma. If there is an acute exanthem, a skin lesion of some kind, and a negative serum reaction, we can say that it is certainly not due to syphilis.

In the presence of hard chancre with a negative Wassermann reaction the chancre may be excised surgically and syphilis aborted. With a chancre present and serum reaction positive, then general infection has taken place and excision of chancre can be of no benefit.

In differential diagnosis of many cases, such as pseudoluetic rheumatism, syphilide about the nose, in pregnant women with a suspicion of syphilis it is important.

The reaction is of value in the selection of a wet nurse and of nurse girls, in order to tell if syphilis has been present. It is being used in Germany as a routine procedure in the examination for life insurance.

It is of value in the diagnosis of diseases of the nose and throat, of the eye, in cases belonging to internal medicine, and in fact, whenever the question of syphilis comes up, even in consent to marry.

112. **Suggestion and Anesthesia.**—Munro urges the importance of suggestion as an aid in inducing anesthesia. It reduces the danger and decreases the amount of anesthetic needed. He cites his observation of the administration of anesthesia at the Mayo's Clinic, Rochester, as an instance of success attendant on the combination. Munro particularly opposes that lack of self-confidence that leads many persons —while admitting that suggestion is undoubtedly a powerful and, when properly used, a beneficent force in the hands of certain persons—to doubt their own capacity to utilize it, even when they have made a study of it. Munro cites instances of operations performed with less than 30 minims of chloroform after adequate suggestive preparation.

### American Journal of Surgery, New York

*November*

113 Various Clinical Types of Acute Dilatation of the Stomach, with Experimental Researches. R. C. Kemp, New York.
114 *Use of the Wax-Tipped Catheter for Diagnosis of Kidney Stone in the Male. W. Ayers, New York.
115 Therapeutic Uses of Active, Passive and Combined Hyperemia. E. P. Fowler, New York.
116 Dysmenorrhea. R. A. Murray, New York.
117 Acute Perforating Gastric and Duodenal Ulcer (continued). E. Eliot, New York.

114. **Wax-Tipped Catheter in Kidney Disease.**—Ayers discusses favorably the use of the wax-tipped catheter, which, he says, is fully as valuable in the male as in the female, when properly used. The only cystoscope that can be used for this purpose is Brown's old model with the projecting telescope. Ayers prefers pure beeswax for tipping the catheter He describes the method, and emphasizes the fact that the ureters vary greatly in length. From measurements with the catheter he puts the average length at from 12 to 14 inches; any obstruction below 12 inches is probably in the ureter. Given a patient with a clinical picture of kidney stone, the question of operation always includes that of the condition of the other kidney. Bilateral catheterization is, therefore, necessary, and at the same time the wax-tipped catheter may be passed and may make an *x*-ray picture unnecessary. He reports two cases which he considers prove absolutely the reliability and accuracy of the waxtipped catheter in the male. It would not be possible to demonstrate a stone in the kidney tissue by this method; also it would be possible to miss a stone in the bottom of the deeply sacculated renal pelvis, but in this case we should find by the catheter a large amount of residual pus, which would make an operation indicated, provided the other kidney was in good condition. When the evidence given by the wax-tipped catheter is positive there is no question of the diagnosis.

### Archives of Pediatrics, New York

*November*

118 Cutaneous and Ocular Tuberculin Tests in Infants Under Twelve Months of Age. H. L. K. Shaw, Albany, N. Y.
119 Congenital Hypertrophic Stenosis of the Pylorus, with the Report of Two Cases Successfully Treated by Gastrojejunostomy. E. W. Mitchell and J. C. Oliver, Cincinnati, Ohio.
120 Present Knowledge of Whooping Cough. H. H. Donnally, Washington, D. C.
121 *Leucocyte Count of Normal "Institutional" Children and Those Suffering with Pertussis. H. O. Mosenthal, New York.
122 Empyema in a Subject Suffering from Purpura. F. Huber, New York.
123 *Simple Method of Circumcision in the New-born. W. R. Wilson, Philadelphia.
124 Contractures Following Epidemic Cerebrospinal Meningitis in a Boy of Ten. H. C. Carpenter, Philadelphia.
125 *Otitis Media Propagata. Mucopurulent Aural Discharge Due to Nasal Catarrh. P. Fridenberg, New York.
126 Diphtheria Following Tonsillectomy and Adenectomy. I. S. Wile, New York.
127 Sarcoma of the Kidney. C. C. Rush, Philadelphia.

121. **Leucocyte Count in Pertussis.**—Mosenthal discusses the leucocyte count in institutional children at the New York Foundling Hospital, and a subsequent similar observation in regard to pertussis, which leads him to the following, among other, conclusions: The average normal leucocyte count of "institutional" children is (13,850 to 16,391) somewhat higher than that usually given. During the catarrhal stage of pertussis an increase is seen in the leucocytes approximating double the normal, and the number of mononuclear cells is increased about 5.5 per cent. at the expense of the polymorphonuclear cells. In the convulsive stage similar, though less marked, changes occur in the blood count.

123. Abstracted in THE JOURNAL, July 11, 1908, p. 156.

125. **Otitis Media.**—Fridenberg describes a case of aural catarrh dependent, primarily, on a secretion or accumulation of mucopus in the posterior nares, and possibly the Eustachian tube, and its discharge from the middle ear through a generally spontaneous perforation of the drum. It is apparently frequent in children as acute catarrh; diminishes *pari passu* with the nasopharyngeal condition, recurs with every cold in the head, and particularly with acute specific diseases. There is a chronicity with intervals of apparent cure and seemingly *de novo* attack. During the last few years, Fridenberg has observed a large number of these cases and in several of them pain, diminished hearing, occasional headache and dizziness and long-standing discharge

have led competent otologists to suggest a radical mastoid operation, which, in the present type of case, Fridenberg considers unnecessary. Such patients are to be treated by attacking the source of the discharge, applying to the posterior nares silver nitrite, from 5 to 20 per cent.; resorcin alcohol, 50 per cent., or iodoglycerin, 10 to 25 per cent., and by the removal of adenoids whenever present.

### Journal of Advanced Therapeutics, Rahway, N. J.

*November*

128 Electricity in Errors of Refraction. S. J. Harris, Boston.
129 The High Candle Power Lamp: Case from Practice. S. T. Birdsall, Glens Falls, N. Y.
130 Advanced Therapeutics of Arthritis Deformans—Progressive Poly-Articular. S. J. Wright, Akron, Ohio.
131 Roentgen-Ray Diagnosis of Diseases of Bones and Joints. A. Granger, New Orleans.
132 Cataphoric Operations as Modified by the Topographic Situation of Particular Neoplasms, with Detailed Report of Cases. G. B. Massey, Philadelphia.

### Journal of Cutaneous Diseases, New York

*November*

133 *Modern Dermatologic Pathology as Related to Practical Therapeutics. M. B. Hartzell, Philadelphia.
134 *Modern Dermatologic Pathology. Its Relation to Therapeutics. C. J. White, Boston.
135 Syphilis in Relation to General Paralysis of the Insane. A. P. Biddle, Detroit.
136 Another Case of Hyponomoderma (Larva Migrans) Demonstrating the Immediate Curative Effect of Chloroform Injected *in Situ*. M. B. Hutchins, Atlanta, Ga.
137 Report of Two Cases of Blastomycosis Cutis. M. B. Hutchins, Atlanta, Ga.

133. **Modern Dermatologic Pathology.**—Hartzell gives examples, to show how little modern pathology has actually influenced the treatment of diseases of the skin. We employ much the same remedies as our predecessors did, though we use them on somewhat different theoretical grounds. The use of bacterial vaccines and of various sera promises to put the treatment of many diseases of the skin on a thoroughly scientific basis, dependent on our knowledge of pathology, and to make it more successful than ever before.

134. **Idem.**—White reviews the seat and nature of changes in cutaneous diseases, and our classical knowledge as regards internal and external administration of drugs, and enumerates as follows the application and discoveries of the last 10 or 15 years that have rendered invaluable service: 1, New drugs; 2, radiotherapy; 3, electrotherapy; 4, actinotherapy; 5, hydrotherapy; 6, organotherapy; 7, psychotherapy; 8, congelation; 9, hyperemia; and lastly, 10, the wonderful and pregnant theories and applications of the various sera. He discusses each of these heads at length, dwelling especially on the various conditions in which vaccines and serums have proved of service.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London

*December 12*

1 *Difficulties in Diagnosis and Treatment of Suppuration in the Neighborhood of the Diaphragm. W. H. White.
2 *Malformation of the Hind End of the Body. A. Keith.
3 Food Extracts Made from Yeast. A. C. Chapman.
4 *Epidemic of Influenza Characterized by Edema of the Eyelids. N. I. Spriggs.
5 Rupture of the Bulbar Branch of the Internal Pudic Artery. J. S. Mackintosh.
6 Case of Buphthalmia. J. H. McIlroy.

1. **Suppuration About the Diaphragm.**—White discusses the malignant disease simulating suppuration, suppuration below the diaphragm, and suppuration above the diaphragm. With regard to hepatic abscess, he reports certain cases, which suggest the following reflections:

1. When considering the possibility of hepatic abscess avoid confusion with (a) malignant diseases of the liver, (b) tropical liver, or hepatitis, (c) malaria, (d) recurrent influenza.
2. By percussion seek for a small local increase upward of hepatic dulness; this is due almost always to abscess or hydatid; it is hardly ever caused by growth or gumma.
3. Local tenderness is of great help in locating abscess.
4. The occurrence of solitary hepatic abscesses in Great Britain with or without intestinal ulceration, and in the tropics apart from amebic dysentery, and the fact that the abscess is solitary, show that we are far from understanding the method of production.
5. If an abscess is present, and has not ruptured in such a way that the pus ultimately can be discharged outside the body, it should be opened at once, and probably it is usually better to do this in India rather than to send the patients home for operation.
6. Abscesses may be latent in the liver for years and give rise to symptoms only occasionally.
7. We often see in Great Britain patients in whom a hepatic abscess is discharging into the lung. Because such abscesses are often very small, often deep seated, and rarely, owing to its frequent discharge, contain much pus, they may be very difficult to find surgically; therefore, whenever possible, the patient should be given the chance of open-air treatment, change of climate, and good food.
8. The cure of such patients may be accelerated by the administration of the appropriate vaccine.

With regard to gallstones, White urges on physicians the propriety of having them removed by a competent surgeon, even though they are not producing dangerous symptoms. He points out that subphrenic abscess may be due to appendicitis when there is no evidence whatever of disease in the appendicular region; for the trouble may be confined to the end of an appendix several inches long and pointing upward. He discusses empyema at considerable length.

2. **Malformations of the Hind End of the Body.**—Keith discusses a series of specimens from the Royal College of Surgeons Museum, illustrating malformations of the rectum and anus, in males and females. In regard to males he considers those cases in which the rectum (1) opens into the urethra; (2) ends as a fibrous cord, at or above the base of the prostate; (3) terminates in a fibrous cord at the site of the proctodeum; (4) ends blindly at the proctodeum. He next discusses the embryologic basis of rectal malformations, and considers it possible that the key to these abnormalities may be found in a primary defect of the sexual glands. With regard to females he discusses cases in which the rectum (1) opens into the navicular fossa of the vulval cleft; (2) ends as a fibrous cord in connection with the vagina; (3) ends blindly or as a fibrous cord at the site of the proctodeum. He further considers certain miscellaneous conditions, as well as abnormalities of the rectum in domesticated animals, and discusses the development of the proctodeum and the results of operation.

4. **Edema of Eyelids in Influenza.**—Spriggs reports an epidemic of influenza which leads him to the conclusion that edema of the eyelids, generally associated with bad frontal headache, may be an early symptom of influenza. This may or may not be followed or accompanied by pyrexia or other general symptoms.

### Lancet, London

*December 12*

7 Pathology and Treatment of Diabetes Mellitus, Viewed by the Light of Present Day Knowledge. F. W. Pavy.
8 Agglutinating Power in Tuberculous Patients: Serum Diagnosis and Serum Prognosis. P. Courmont.
9 Milk Supply for Infants; Recent Aspects and Possibilities. W. Ewart.
10 Neurasthenia Complicated with (?) "Vaso-Vagal Attacks." M. M. Burgess.
11 Case of Cerebellar Abscess Following Middle-Ear Suppuration; Operation: Death. G. N. Biggs.
12 Lateral Sinus Thrombosis with Pyemic Pulmonary and Pericardial Complications, etc. Operation: Recovery. J. Mackie and H. B. Tawse.
13 Simple Method of Obtaining a Preparation of Living Isolated Leucocytes. C. W. Ponder.

### Medical Press and Circular, London

*December 2*

14 Symptoms and Diagnosis of Subphrenic Abscess. M. Lance.
15 Menthol and Its Internal Uses. M. Young.
16 Operative Treatment of Spinal Caries. T. S. Kirk.
17 Channels of Entrance of Tuberculosis. S. Bernheim.

*December 9*

18 Incontinence of Urine and Its Treatment. C. A. Ball.
19 *Suppuration in Appendicitis. E. M. Corner.
20 Malunion of Fractured Leg Bones. F. S. Heaney.
21 Treatment of Eclampsia. O. Osterloh.

19. **Suppuration in Appendicitis.**—Corner summarizes his article as follows: Suppuration is almost universal in appendicitis; in patients recovering without the need of operation, the pus is discharged by way of the appendix almost always; if the temperature is raised for as long as four days, pus is present; if there is a mass in the abdomen, pus is present, often discharging satisfactorily internally about three times as often into the small bowel as into cecum; that temporary fecal fistulas are common with appendix abscess; that, if such fistulas communicate with a hollow viscus and persist, they

are a great danger in the operation of appendicectomy done in the "quiet interval"; that a fistulous opening in the bowel may lead to an intestinal abscess; that operation be done for signs and symptoms rather than for "evil prophesies"; that in the future, far more operations will be done in the acute stage and fewer in the quiet stage; that too small an incision must never be used through which to remove an appendix in the quiet interval; that, finally, appendicitis owes its danger to life to its septic character, and that the presence of pus is not necessarily an indication for operation, being almost universal in the disease.

### Clinical Journal, London

*December 9*

22 Diseases of Miners, Woolsorters and Others. F. M. Sandwith.
23 Diagnosis of Malignant Disease of the Liver. H. D. Rolleston.

### Deutsche medizinische Wochenschrift, Berlin

*Nov. 12, XXXIV, No. 46, pp. 1969-2008*

24 *Influence of Practice and Habit on the Course of Reflex and Automatic Processes. (Einfluss der Uebung und Gewöhnung auf den Ablauf reflektorischer und automatischer Vorgänge.) G. Treupel.
25 *Finger Reflex. (Fingerbeugereflex.) L. Jacobsohn.
26 *Action of Powerful Electric Current on Animal Body. (Wirkung des Starkstromes auf den tierischen Körper.) Rodenwaldt.
27 *Apparatus for Application of Hyperemic Treatment in Gynecology. (Anwendung der Bierschen Stauung bzw. Saugmethode in der Gynäkologie.) L. Seeligmann.
28 Serotherapy of Pneumococcus Infection of Eye. (Spezifisches oder nichtspezifisches Serum bei der Pneumococceninfektion des menschlichen Auges—Ulcus serpens?) P. Römer.
29 *Essential Hematuria. Pincus.
30 Traumatic Alopecia. Wechselmann.

24. **Influence of Practice and Habit on Reflex and Automatic Processes.**—Treupel ascribes to some abnormal habit, frequently casually acquired, many morbid disturbances in respiration, heart action and gastrointestinal functioning. Practice and habit are shown by the examples cited to have an important influence in some cases on certain functions of the body, and on the therapeutic influencing of various affections. Persons unable to tolerate certain articles of food, such as eggs or strawberries, harmless for others, can be trained to tolerate them by commencing with small amounts and educating them to tolerance. This has been done with children who had an idiosynerasy against eggs. Just as setters and pointers can be trained to certain inherited reflex and automatic functions, the functions of the human body can be trained to a far greater extent than is generally realized. The patient must be instructed in respect to the factors and steps of the normal process and his will power called into play and re-enforced by various aids, electricity, massage, baths, systematic exercises, etc. The most common example of the influencing of reflex and automatic processes is the chronic constipation that results as the impulse for defecation at a certain regular hour is disregarded. The warning reflex grows weaker and weaker and finally ceases altogether, but can be regained by systematic training.

25. **The Finger Reflex Sign.**—Jacobsohn describes a reflex which can be elicited in the fingers in spastic paralysis of the upper extremity of cerebral origin, analogous to Babinski's toe reflex. The patient lays his forearm on the physician's hand, the thumb up, the fingers lightly extended. A slight tap with the percussion hammer on the lower end of the radius causes no change in the fingers under normal conditions; they remain straight. But in case of the presence of spastic paralysis, the fingers bend, as the toes bend in the Babinski sign. He has found this finger-bending reflex constant in this form of paralysis. Bechterew has called attention to approximately the same reflex, entitling it the carpometacarpal reflex; he classed it with the plantar reflex.

26. **Treatment of Electric Accidents.**—Among the points learned in the course of the experimental research reported was that the heart was always severely injured when it lay in the direct route of a powerful electric current, the blood pressure dropping and the heart action becoming arrested. But when the heart was not in the direct line of the current the blood pressure rose, probably from irritation of the splanchnic nerve. The tracings of heart action and respiration show that the current never takes a roundabout route, and, further, that there is no particular personal danger for the one aiding the injured person if he uses his foot to push or draw the injured person out of reach of the live wire. The hands should not be used unless thoroughly protected. The electric discharge affects the heart and respiration separately, the respiration being arrested by the tetanus induced by the current; after this subsides, natural respiration may return. The outcome of the accident depends exclusively on the amount of injury done to the heart. Some of the animals spontaneously started to breathe naturally again after subsidence of the tetanus, but unless the heart action revived, the animals all died. These cases of physiologic return of the respiration, without the revival of the animals, show that artificial respiration is useless unless the heart functioning can be restored. When the heart started to work before respiration returned, all the animals recovered, even when there was a long interval before the return of respiration. In case of an electric accident, therefore, if the pulse is beating, especially if the tension is high, no further measures are required for resuscitation—venesection, to reduce the blood pressure, is directly contraindicated. When the heart is not in the direct line of the current, respiration starts up as soon as the traumatic tetanus has subsided. In none of the experiments did the physiologic or artificial respiration, no matter how long continued, revive the paralyzed heart, while, on the other hand, a slowly reviving heart starts to work again of itself, even after arrest of the respiration. The returning heart action is able to start up the arrested respiration, even after a long pause, and this occurs whether the heart action was restored spontaneously or by direct massage of the organ. The experiments show thus that a low blood pressure is a sign of direct injury of the heart; a high blood pressure can be accepted as a sign that the danger is past. Treatment in an electric accident should therefore aim to stimulate the heart, the organ should be massaged without delay in case it is not working distinctly, with tonics subcutaneously, and, if available, application of the Leduc current according to L. Rabinowitsch. In these directions, Rodenwalt advises directly contrary to Jellinek, who lays the greatest stress on artificial respiration and venesection. Rodenwalt adds in conclusion that he was able to revive animals by massage of the heart even when the blood pressure was so low that the cornea was entirely soft. Softening of the cornea therefore can not be regarded as a sign of actual death.

27. **Suction Hyperemic Treatment of Gynecologic Affections.**—Seeligmann gives an illustration of a glass speculum connected with a rubber bulb which allows Bier's hyperemic technic to be applied in chronic metritis, endometritis, amenorrhea, abscesses, etc. He precedes the application of the suction by scarification or a small incision. The method applied at the date of the menses has proved useful in disturbances from the natural or induced menopause. He also applied the method with prompt success in a case of puerperal infection. After aspiration of large amounts of purulent secretion from the uterus the fever subsided. He applies the suction for only ten minutes, but repeats it daily. His experience confirms the advantages of suction treatment of mastitis, stitch-hole abscesses, etc.

29. **Essential Hematuria.**—Pincus' patient was a woman of 32 who was treated for unilateral hematuria by nephrotomy. The kidney was found surrounded by adhesions, but normal except for some small cysts in the capsule. The patient had no further hemorrhage for two years, when hematuria from both kidneys followed a fall downstairs with some contusion of the kidney region. The massive hemorrhage was evidently the result of chronic inflammatory processes in both kidneys, but the patient did not seem very anemic and the hematuria gradually subsided under conservative measures, disappearing completely in the course of four and a half months.

### Wiener klinische Wochenschrift

*Nov. 12, XXI, No. 46, pp. 1581-1614*

31 Transformation of Albumin in Exophthalmic Goiter. (Eiweissumsatz bei Morbus Basedowii.) K. Rudinger.
32 Negative Influence of Various Diets on Exophthalmic Goiter. (Einfluss verschiedenartiger Diätformen auf dem Grundumsatz bei M. Basedowii.) E. Pribram and O. Porges.

33 *The Blood Picture in Exophthalmic Goiter and Conditions Approximating It. (Blutbild bei Morbus Basedowii und Basedowoid.) J. Gordon and N. v. Jagic.
34 *Treatment of Degeneration of the Myocardium with Intravenous Injections of Strophanthin. (Behandlung der Myodegeneratio cordis mit intravenösen Strophanthininjektionen.) J. Flesch.
35 *To Insure Asepsis in Operating on Intestines. (Aseptische Darmoperationen.) L. Moszkowicz.
36 Tampon Cannula for Laryngeal Stenosis. (Anwendung einer brauchbaren Tamponkanüle beim laryngostenotischen Infektionskranken Kinde.) D. Pospischill.

*Nov. 19, No. 47, pp. 1615-1652*

37 *Backwardness in Children. (Kindliche Minderwertigkeiten.) K. Potpeschnigg.
38 *Application of Anaphylaxis to Diagnostic Purposes. (Diagnose der Tuberkulose des Menschen mittels Anaphylaxie.) T. Yamanouchi.
39 Appendicitis and Pregnancy. J. Halban.
40 Typhoid Bacilli in the Blood and Agglutination in Pyemia. (Typhusbazillen im Blute und Gruber-Widalsche Reaktion bei Pyämie.) A. Krokiewicz.

33. **Blood in Exophthalmic Goiter.**—The examination of six patients with typical and seven with abortive exophthalmic goiter confirmed the statements of those who have described a specific blood picture in this affection. The lymphocytosis and the preponderance of mononuclears are especially characteristic. None of the findings indicate essential injury of the bone marrow, but all point to an abnormal reaction on the part of the lymphatic apparatus. This is confirmed by the frequent enlargement of the spleen and of the lymph glands.

34. **Intravenous Strophanthin Treatment of Degeneration of the Myocardium.**—Flesch has only a single case to report, but the benefit was so striking after the failure of all other heart tonics and diuretics that he can not refrain, he says, from calling attention to it. His standard dose was 0.001 gm. (0.015 grains) injected directly into a vein, at intervals of two or three days, not waiting for compensation to fail entirely. He was thus able to keep his patient, a man of 44, in good condition for months, notwithstanding his degenerated myocardium.

35. **Aseptic Operations on the Intestines.**—Moszkowicz here gives nine illustrations showing the details of his method of clamping the intestine with narrow rods. By clamping the two sets of rods together the stumps are united without opening the lumen. The outer surface of the intestine beyond is then drawn up and sutured, the stumps being thus sutured together over the narrow rods. The latter are then pulled out and the small hole left at each end of the suture is closed with an extra stitch. The lumen of the intestine is thus not opened until after the stumps have been sutured together. Even if there were no other advantages from this aseptic technic, he says, than the keeping the field of operation clean, it would be much superior to other technics, but he is convinced that the morbidity will be reduced with it.

37. **Nature and Causes of Backwardness in Children.**—Potpeschnigg has been examining the 150 children in the nine classes for backward children in the public schools at Graz. He states that provision for children who can not keep up in school with their mates is not well developed in Austria, there being only 21 of such classes, with 510 pupils, while Germany has 660 classes with 15,000 scholars. He found that by far the largest majority of the backward children had some inherited taint, but tuberculosis and syphilis were very much less frequent than alcoholism and nervous disturbances in the parents.

38. **Application of Anaphylaxis to Diagnostic Purposes.**—Yamanouchi has been utilizing the recently established fact that the anaphylactic condition can be passively transferred to normal animals, both of the same and other species, from rabbits to guinea-pigs, for instance. When the organism becomes hypersensitive to some antigen, some bacterial toxin for instance, the passive transference of the blood from this hypersensitive organism, to another, with the toxin or a specific product of the metabolism of the bacterium in question, is followed by symptoms of hypersensitiveness in the animal used for the experiment. The blood of the anaphylactic individual and the specific substance which induced the anaphylaxis are the two factors which combine to induce anaphylaxis in the second individual. If we know one, it is easy to determine the other, and he applies this fact for the diagnosis of tuberculosis. He gives the details of experiments on a hundred rabbits. They were injected in the peritoneum with about 5 c.c. of blood or serum from a tuberculous patient or cadaver. Then, a day or two later, they received an intravenous injection of some tuberculin or tubercle bacillus extract in a salt solution. When the blood or serum was derived from a non-tuberculous individual there was no reaction to the injection of the tuberculin, but when it had come from a tuberculous source, the animals thus sensitized reacted to the tuberculin with dyspnea, weakness and paresis of all extremities; they lay on their side and died in convulsions in from half an hour to two hours, if tuberculin had been used. The symptoms were less severe and the animals recovered in time if the bacillus extract had been injected instead of the tuberculin. In the tests with blood or serum from patients with cirrhosis of the liver, acute pneumonia, sciatica, etc., the tests were constantly negative. This anaphylactic diagnostic test is so sensitive that a positive reaction was obtained not only in the advanced cases of tuberculosis, but even in cases of miliary tuberculosis in which the ocular and cutaneous tuberculin tests gave negative results. The anaphylactic reaction was negative also with serum from three cadavers in which only traces of healed tuberculous lesions were found.

## Zentralblatt für Gynäkologie, Leipsic

*Nov. 14, XXXII, No. 46, pp. 1497-1520*

41 *Treatment of Placenta Prævia. B. Krönig.
42 *Prevention of Air Embolism in Obstetrics. (Verhütung der Luftembolie in der Geburtshilfe.) E. Opitz.

*December 5, No. 49, pp. 1569-1592*

43 *Remote Results of Alexander-Adams Operation. (Dauererfolge des Alexander Adams.) W. Hannes.
44 Cancer of Cervix with Accumulation of Mucus in Uterus. (Ueber Mukometra.) R. Birnbaum.
45 *Scopolamin-Morphin Anesthesia in Gynecology. E. Boesch.

*December 12, No. 50, pp. 1593-1616*

46 Restoration of Genital Function by Abdominal Operation in Imperforate Vagina. (Inwieweit ist die Herstellung voller Genitalfunktion bei Gynatresien durch abdominale Operation möglich?) F. Cohn.
47 Suprasymphyseal Cesarean Section. (Zur Indikation und Technik des suprasymphysären Kaiserschnittes.) Hammerschlag. Id. (Kasuistik.) F. Kahn.
48 Technik of Dilatation of Uterus with Tents. (Zur Technik der Laminariadilatation.) M. Stolz.

41. **Treatment of Placenta Prævia.**—Krönig thinks that the present treatment by version or the inflatable bag gives results that are far from satisfactory, the latest statistics showing a maternal mortality of from 6 to 10 per cent., and of the children from 60 to 80 per cent. Death occurs from hemorrhage in the majority of fatal cases, and he believes that the hemorrhage comes mainly from the lacerated vessels of the upper part of the cervix. The more the cervix is stretched, the more unfavorable are the chances for spontaneous arrest of the hemorrhage in the vessels of the isthmus. Vaginal and cervical Cesarean section has the disadvantage that if the placenta is attached on the forward wall the site comes into the incision. If it is on the rear wall these technics may give good results, but, as one can never be certain of this, he rejects them in favor of abdominal Cesarean section with which the bleeding point can be inspected and properly tamponed. If the hemorrhage continues after tamponing, he would not hesitate to do supravaginal amputation of the uterus at once. Of course, this is a serious procedure and he has never had occasion to do it himself, but he advocates it on principle as the safest way to treat this complication of delivery with its 8 per cent. mortality. His six patients required nothing more than the abdominal Cesarean section. If the os is fully dilated, the isthmus is already stretched, and if the hemorrhage continues he does version and awaits spontaneous delivery. After expulsion of the child, if the bleeding continues, he at once loosens the placenta with his fingers. He thinks that much harm is often done by waiting too long. If blood still oozes and persists, in spite of massage and hot rinsing of the uterus, he advises supravaginal amputation. It is hard to decide on this, he admits, but more active procedures must be adopted if the enormous mortality from hemorrhage is to be reduced. Experience with tubal pregnancies has shown that patients bear a brief laparotomy well

even after excessive loss of blood. In case of suspected infection he examines to determine the location of the placenta. If on the rear wall, he does vaginal Cesarean section; if not, version. If the hemorrhage persists postpartum, he advocates supravaginal amputation here also. The hemorrhage in his six cases of abdominal Cesarean section was so slight that he intends to follow this technic in future. The women were all up the first day and all left the clinic in the first three weeks, and all the children were born alive.

42. **Prevention of Air Embolism in Obstetric Practice.**—Opitz warns that raising the pelvis produces negative pressure in the abdomen, and he urges the importance of keeping the shoulders higher than the pelvis. The vessels are liable to be held open when the placenta is partly attached and partly separated, particularly with placenta prævia, Cesarean section with the pelvis raised, and with any maneuvers which allow the penetration of air beside the intact bag of waters. It is especially important when the patient lies across the bed that the upper part of the trunk is not allowed to sink into the mattress lower than the pelvis on the edge of the bedstead. Moving the patient around is also liable to suck up air, as also deep breaths, especially after straining or groaning. If air is felt in the uterus, the outlet should be held open so that the air can escape when friction is applied to the uterus. In his experience with 4,500 deliveries he has never had a case of air embolism, and he ascribes his good fortune to the care in keeping the shoulders constantly higher than the pelvis.

43. **Remote Results of Alexander-Adams Operation.**—Hannes has examined 71 women on whom this operation was performed in previous years at Küstner's clinic at Breslau. Nine of the women had aborted once since, but this was explained by syphilis in one case, and the other women had all had a normal pregnancy, besides the one that terminated in abortion; 28 women had passed through 51 normal pregnancies and deliveries since the operation. These results show that the physiologic functioning of the uterus is not disturbed by this operation. There has been no tendency to hernia in any of the women with one exception, and in this case special conditions interfered with the proper suturing of the incision. Subjective disturbances were encountered in 25 cases, but in all but 7 these were referable to some extragenital affection. Out of the whole number, thus, there are only 7 women whose disturbances were not fully cured by the intervention, and even in these cases the further progress and aggravation of the disturbances had been prevented, and probably could have been completely cured if the women had decided on the operation sooner.

45. **Scopolamin-Morphin Anesthesia in Gynecology.**—Boesch writes from von Herff's clinic at Basle to emphasize the advantages of this form of anesthesia in gynecologic practice. His experience includes 50 cases in which this anesthetic alone was used for minor operations; 50 cases in which it was combined with general anesthesia for examination without surgical intervention, and 100 cases in which an operation was performed under this combination. The scopolamin-morphin method has been applied 2,000 times in the clinic in the last few years—exclusive of obstetric cases. The patient falls tranquilly asleep, free from worry, and the general anesthesia creeps insensibly over her, requiring only a fraction of the amount otherwise needed. When she rouses, the pain of the wound is deadened and, if vomiting occurs, it proceeds without effort. Another advantage is that the glands and mucosæ are not stimulated to extra secretion. The number of postoperative pneumonias has been less than 0.7 per cent. since 1905 and even less than this in the latest series.

## Gazzetta degli Ospedali e delle Cliniche, Milan

*November 22, XXIX, No. 140, pp. 1501-1516*

49 Allowing Patients to Get Up Early After Major Operations. (Mobilizzazione precoce degli operati.) E. Magni.
50 Antibodies in Milk. (Anticorpi del latte.) L. Panichi and E. Calcaterra.
51 Myasthenia of Peripheral Nervous Origin. (Miastenie d'origine nervosa periferica.) Z. Capuzzo.
52 Mediastinal Tumors. (Due casi di tumore del mediastino con peculiare sindrome clinica.) Z. Guerra.
53 Medicolegal Aspect of Stab Wounds of Lungs. N. Federici.
54 Local Injection of Carbolic Acid in Anthrax. (Metodo Baccelli nella pustola maligna.) O. Tedde.

*November 29, No. 143, pp. 1533-1548*

55 *Gout. (Ancora della gotta, con speciale riguardo alla teoria di Falkenstein.) T. Silvestri.
56 Aggressins in Tuberculous Exudates. (Ricerche sugli essudati aggressinici tubercolari.) E. Calcaterra.
57 Nerve Filaments in Experimental Tetanus. (Sul reticolo neurofibrillare delle cellule motrici nella infezione tetanica sperimentale.) G. Breccia.
58 *Operative Treatment of Brain Tumors. (Trapanazione del cranio per tumore del cervello.) D. Maragliano.
59 *Hot Iodized Irrigation in Puerperal Infection. (Metodo del Mergari nella cura dell'infezione puerperale.) O. Ortali.

55. **Gout.**—Silvestri presents evidence to sustain his assumption that gout is the result of qualitative functional changes in the lymph-producing apparatus, disturbing the metabolism, especially the metabolism of nuclein. Any causes that impede the functioning of the lymph-producing apparatus, he asserts, are therefore liable to aggravate the morbid tendency and cause exacerbation of the gout. Gastrointestinal autointoxication is thus liable to aggravate the gouty tendency as also disturbances in thyroid functioning, etc., and treatment restoring conditions approximately to normal in this respect will also have a favorable influence on the gout.

58. **Surgery of Brain Tumors.**—Maragliano advises operating in two sittings, but insists that the dura should be opened at first intervention to allow the circulation to adapt itself to the new conditions before attempting the enucleation of the tumor. With care it is possible to avoid injury of the pia. He discusses the postoperative prognosis in regard to immediate and remote results, and the phenomena likely to be observed as the result of altered functioning of the region. With preventive hemostasis the mortality is constantly growing less; in his own experience with 9 cases the patients all recovered except one, who required multiple operations. Oppenheim has reported a mortality of 55 per cent. in his 27 cases, with complete recovery to date in only 3 instances. In one of Maragliano's cases he removed a tumor in the left Rolandic area, relieving the patient of intense pain, but aphasia developed after the operation with right hemiplegia, which subsided, but the aphasia persists still to some extent, with complete inability to write or understand written or printed words. The tumor had not touched the cortex of the convolution of Broca, but had invaded the white substance below. After the first intervention there was complete paralysis of the right arm, but the leg was intact and the Babinski sign was absent; the second step of the operation brought on the hemiplegia of the right leg, and with it appeared the Babinski sign, evidently the result of disturbances in circulation and vanishing as these subsided. The general phenomena have all subsided, while the local symptoms have become aggravated by the removal of the neoplasm.

59. **Hot Iodin Lavage of the Infected Puerperal Uterus.**—Ortali has applied in three cases Mergari's method of treating puerperal infection, and he commends it in high terms. The vagina is disinfected, dilated, and the uterus lightly curetted to remove all retained clots, after which the uterus is flushed with from 100 to 500 gm. of a mixture of equal parts of tincture of iodin and hot water, allowing free escape to the fluid. After a few minutes, or at the first complaint by the patient, the uterus is rinsed out with plain boiled water to remove any excess of iodin. No tamponing, either of uterus or vagina, is necessary. It is remarkable, Ortali asserts, how quickly normal conditions are restored in the uterus by this method of treatment. He warns that this or any local measure is applicable only when the infection results from a local process.

## Policlinico, Rome

*Nov. 22, XV, Practical Section, No. 47, pp. 1477-1508*

60 Hematuria of Renal Origin with Cirrhosis of Kidney. (Ematurie renali nei cirrotici.) G. Basile.
61 *Insufflation of Oxygen to Revive the New-born. (La respirazione artificiale nei neonati.) E. Cavazza.

*November 29, No. 48, pp. 1509-1540*

62 Tracheotomy for Foreign Bodies. (Quattro tracheotomie per corpi estranei sottoglottidei.) D. Mambrini.

*November, Medical Section, No. 11, pp. 477-524*

63 Behavior of Glycogen in the Liver During Starvation. (Del modo di comportarsi del glicogene epatico nella inanizione.) C. Fonzo.
64 Research on Cutaneous Sensibility. (Sensibilita cutanea dell' uomo.) G. Calligaris. Commenced in No. 10.
65 Neuroses and Organic Causes. (Nevrosi e forme organiche.) G. L. Lucangeli.

61. **Oxygen Insufflation for Revival of the New-Born.**—Cavazza recommends a method of restoration of respiration, after failure of the ordinary measures, with which he has been successful in three severe cases. He inhales oxygen from a tank and then by mouth-to-mouth insufflation breathes the oxygen into the child's lungs, stimulating breathing by the reflexes from time to time. In one case of long and difficult labor, asphyxia was marked, but the heart was faintly beating. After half an hour of the oxygen insufflation the temperature rose to normal and the heart gained ground a little, but there was not a trace of respiration. He kept up the insufflations for two hours and three quarters, when signs of restoration of breathing were perceived and the child soon revived. In one case he kept up the insufflation for an hour before the oxygen arrived, the heart action slightly improving under it. Signs of respiration became evident in twenty minutes after the oxygen was used. He takes a breath of oxygen and then one of air, and insufflates into the child's mouth once every two seconds. He believes that the advantages of this measure, as a last resort, counterbalance all the possible drawbacks.

### Hygiea, Stockholm

*September, LXX, No. 9, pp. 787-898*

66 *Antiseptic Local Treatment and Prophylaxis of Certain Contagious Diseases. (Motiverlng och förslag till antiseptisk lokalbehandling vid vissa farsotssjukdomar.) N. Englund.
67 Stones in the Prostate. (Lithiasis prostatæ.) G. Ekehorn.
68 Congenital Megacolon. (Hirschsprung'ska sjukdomen.) J. A. Hedlund.
69 Traumatic Neurosis. E. Wikner.

66. **Local Treatment and Prophylaxis of Infectious Diseases.**—Englund agrees with those who demand an active local treatment as indispensable, in connection with other measures, in treatment of diphtheria, scarlet fever, etc., in which the throat and nose are particularly involved, and as a preventive for others liable to contract the disease or to transmit it. He commends as most effectual a gargle of a 1 to 1,000 or 1 to 3,000 solution of iodin trichlorid. He prescribes a 10 per cent. solution, and orders 5 or 6 drops of this to be added to a third of a glass of water, to be used as a gargle from eight to ten times a day. After the gargle he insufflates into the nose and throat, six or eight times a day, a mixture of 12 parts calcium phosphate, 6 parts sodium sozoiodolate, 1 part of some colloidal silver salt, with 1 part sugar of milk, 0.2 part menthol, and 0.3 part sugar. The gargle and insufflation are especially indicated after meals. This local treatment is effectual for all infectious affections of the throat and nose, and should be enforced as a preventive measure in times of epidemics and in the environment of cases of infectious disease. Persons in attendance on the sick must be careful to disinfect not only the hands and clothes, but the nose and throat as well. Isolation of the sick is not enough; before the physician is called to the case, other members of the family are liable to be already harboring the germs.

### Norsk Magazin for Lægevidenskaben, Christiania

*November, LXIX, No. 11, pp. 1037-1120*

70 Combined Sclerosis of Tracts of White Matter in the Spinal Cord. (Et tilfælde af kombineret strengsklerose.) N. B. Grøndahl.
71 Meningo-Encephalo-Myelitis Suggesting Hysteria. Id.
72 Cyst in Velum Interpositum Causing Sudden Death. (Tilfælde af cyste i tela choreoidea foraarsagende pludselig død.) Id.
73 Anaphylaxis. S. Widerøe.
74 *Quantitative Tests for Albumin. (Kvantitative albuminbestemmelser.) Id.

74. **Quantitative Tests for Albumin.**—Widerøe describes his experience with the Esbach, Tsuchiya and Christensen techics and Walbum's albuminimeter. The comparative findings are shown in a diagram. They confirm the superiority of the Tsuchiya phosphotungstic method and the Walbum albuminimeter over the other technics, and he commends the latter especially to the general practitioner as both simple and reliable.

### Ugeskrift for Læger, Copenhagen

*November 5, LXX, No. 45, pp. 1277-1300*

75 Successful Application of Handley's Operation for Relief of Edema in Arm After Removal of Breast. H. Maag.

### Upsala Läkareförenings Förhandlingar

*XIV, No. 1, pp. 1-106. Last indexed Nov. 14, p. 1744*

76 Principles of Modern Care of the Insane. F. Svenson.
77 Abnormal Development of Skull and Its Influence on the Brain. (Om bathry- och clinocefali.) G. Backman.
78 Development of Lachrymal Caruncle. (Om utvecklingen af Caruncula lacrimalis hos människan.) F. Ask.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A TEXT-BOOK OF GENERAL PATHOLOGY. By J. Martin Beattie, M. A. (N. Z.), M.D. (Edin.), Professor of Pathology and Bacteriology, University of Sheffield, and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P., Lecturer on Pathological Bacteriology, and Senior Assistant to the Professor of Pathology in the University of Edinburgh. Cloth. Pp. 475, with illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1908.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoën. Von P. Von Baumgarten, o.ö. Professor der Pathologie an der Universität Tübingen, and F. Tangl, o.ö. Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Twenty-second Year, 1906. Paper. Pp. 964. Leipsic: Verlag von S. Hirzel.

HEPATOZOON PERNICIOSUM (N.G., N. SP.); A HEMOGREGARINE PATHOGENIC FOR WHITE RATS; WITH A DESCRIPTION OF THE SEXUAL CYCLE IN THE INTERMEDIATE HOST, A MITE (LELAPS ECHIDNINUS). Hygienic Laboratory Bulletin 46. June, 1908. By W. W. Miller. Paper. Pp. 51, with illustrations. Washington: Government Printing Office, 1908.

THE RELATIONS OF MEDICAL EXAMINERS AND MEDICAL PRACTICE ACTS TO MEDICACL EDUCATION, MEDICAL COLLEGES, MEDICAL STUDENTS AND THE PROFESSION. By P. C. Remondino, M.D., Ex-Vice-President of the State Medical Society of California. Paper. Pp. 200. San Diego, Cal.: Frye & Smith, Publishers.

A SYSTEM OF SYPHILIS. In Six Volumes. Vol. II. Edited by D'Arcy Power, M.B., F.R.C.S. and J. Keogh Murphy, M.D., M.C., F.R.C.S., with an Introduction by Jonathan Hutchinson, F.R.S. Cloth. Pp. 387, with illustrations. Price, $13.50. New York: Oxford University Press, 1908.

VACCINATION. What It Is, What It Does, What Its Claims Are on the People. By F. C. Curtis, M.D., Consulting Dermatologist, New York State Department of Health. Paper. Pp. 39, with illustrations. Issued by the New York State Department of Health, 1908.

THE RECTUM, Its Diseases and Developmental Defects. By Charles B. Ball, M.Ch., F.R.C.S.I., Hon. F.R.C.S., Regius Professor of Surgery in University of Dublin. Cloth. Pp. 332, with illustrations. Price, $10.50. New York: Oxford University Press.

ERGEBNISSE DER INNEREN MEDIZIN UND KINDERHEILKUNDE. Redigiert von Th. Brugsch, L. Langstein, Erich Meyer and A. Schittenhelm. Vol. II. Paper. Pp. 708, with illustrations. Price, 24 marks. Berlin: Verlag von Julius Springer, 1908.

VACCINE THERAPY AND THE OPSONIC METHOD OF TREATMENT. By R. W. Allen, M.D., B.S., Late Pathologist to Royal Eye Hospital. Second Edition. Cloth. Pp. 242, with illustrations. Price, $2.00. Philadelphia: P. Blakiston's Son & Co., 1908.

LECTURES ON THE PATHOLOGY OF CANCER. By Charles Powell White, M.A., M.D., F.R.C.S., Pilkington Cancer Research Fellow. Cloth. Pp. 83, with illustrations. Price, 3 shillings 6 pence. Manchester: The University Press, 1908.

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